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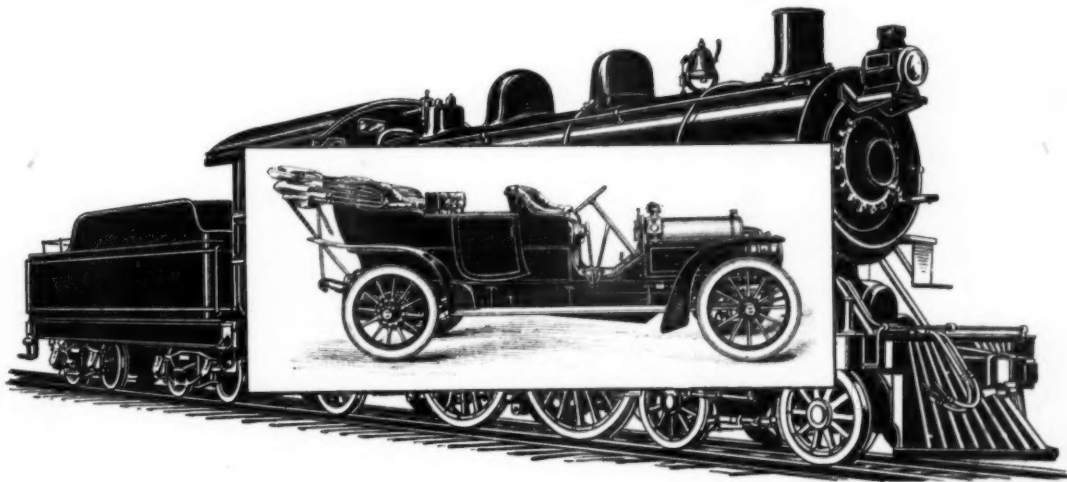
AUTOMOBILE MAGAZINE

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ANGUS SINCLAIR, Editor
136 Liberty Street, New York



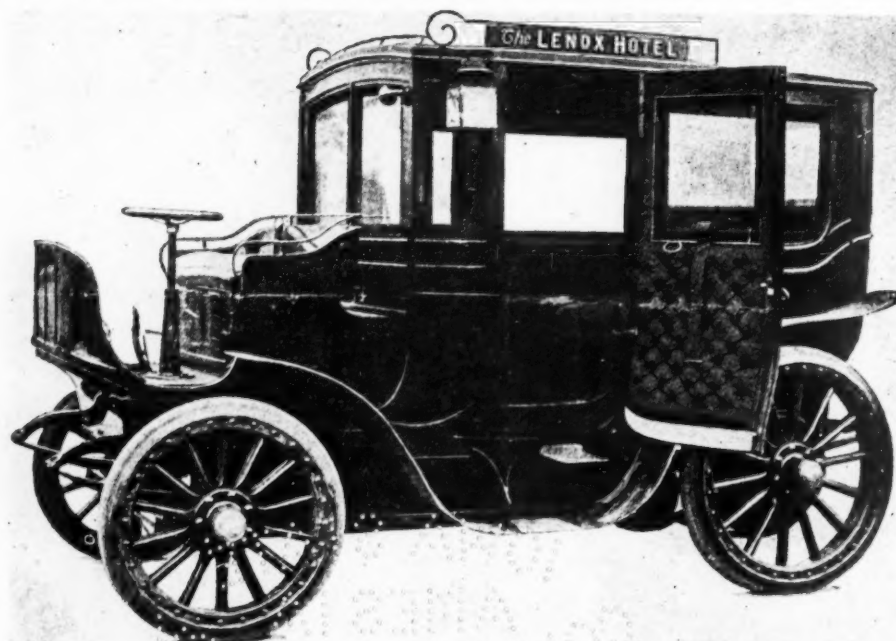
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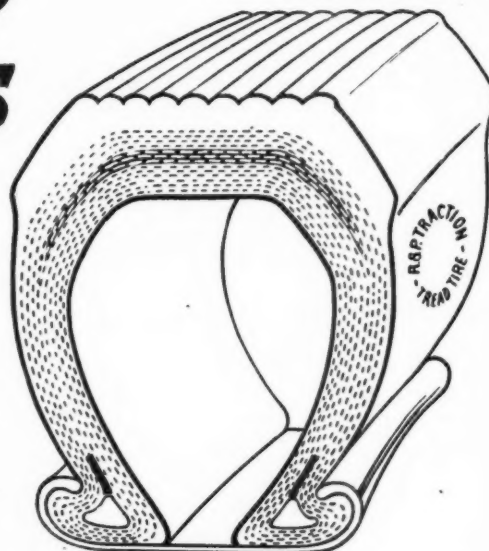
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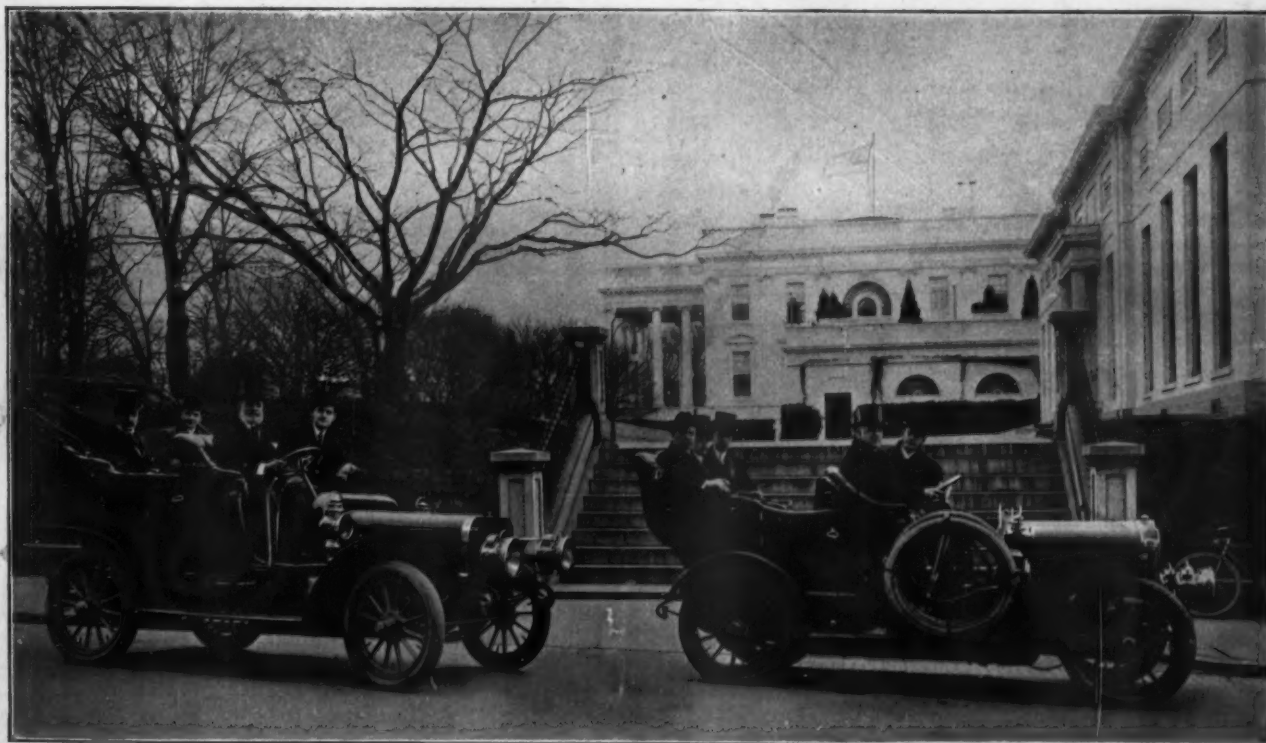
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High Dignitaries Invited

This year, for the first time in the history of automobile shows in Madison Square Garden, the President of the

dent, appointed by the show committee, consisted of George N. Pierce, Alexander Winton, E. R. Thomas, H. H. Franklin, G. M. Studebaker, Col. George Pope and

the Importers' Automobile Salon, Inc., and Marcus I. Brock, assistant general manager of the Association of Licensed Automobile Manufacturers.



DELEGATION FROM ASSOCIATION OF LICENSED AUTOMOBILE MANUFACTURERS' ASSOCIATION AT WASHINGTON, SOLICITING PRESIDENT ROOSEVELT AND OTHER DIGNITARIES TO ATTEND OPENING OF AUTOMOBILE SHOW IN MADISON SQUARE GARDEN.

United States, the royal heads of all the Powers, and the representatives at Washington of the foreign rulers, were formally invited to be guests of honor at the show during the week of January 12-19. The invitations were magnificent creations of Tiffany enclosed in several envelopes, the outer one being of leather, fastening with a clasp. These were presented in person to President Roosevelt, and to the ambassadors of the Powers at Washington. The committee on invitation to the Presi-

Carleton R. Mabley. Besides that to President Roosevelt, invitations were issued to the rulers and the ambassadors of the following nations: England, France, Germany, Italy, Japan, Austria, Mexico, Brazil. The invitations to the ambassadors and their sovereigns were delivered subsequently to that of the President by a special committee consisting of S. T. Davis, Jr., of the executive committee of the Association of Licensed Automobile Manufacturers; E. Rand Hollender, of

This activity in bringing influential persons to the automobile show is highly creditable to the business ability of those in charge and cannot fail to benefit all concerned, more especially exhibitors. The managers of most shows concern themselves principally in securing exhibitors and then permit the attendance to care for itself. Having the President and other influential personages patronize the show renders it at once popular with the people.

Favorite Lingering Spots in the Palace Show

Seventh Annual Show of the Automobile Club of America

By James Kennedy

The seventh annual automobile show held under the management of the Automobile Club of America, and participated in by the American Motor Car Manufacturers' Association, was held in the Grand Central Palace, New York, during the first week in December, and was in every way the most successful exhibition held under the auspices of the club.

The entry list included sixty-three American cars, twenty foreign cars, seven types of commercial vehicles and six motor bicycles. The accessory exhibits numbered nearly one hundred and fifty, in addition to which there was an Aeronautical Division, comprising sixty-eight exhibits, ranging from airships and balloons to flying machines and kites. Superadded to these was a very interest-

better represented. Society was there splendid in purple and fine linen. The weather seemed to lend itself to the display, the thermometer dancing from zero to summer heat on alternate days, giving an opportunity for costuming of which the ladies particularly took full advantage. One day it was the gossamer grace of queenly womanhood in silk and satin and jewelry that glittered like a window in Tiffany's. Next day it was dainty dowagers, fur-clad, in ermine, sable and seal-skins that defied the wintry winds. The elements aided in bringing the thronging thousands to the dazzling exhibition, and no better proof could be had of the great and growing popularity of the automobile than the passing panorama of youth and beauty and age and honor that thronged in tens of thousands to witness the triumph that the cunning hand of man has

Of the cars themselves it might be said that there is a marked advance in the perfection of detail. The most striking feature is the luxuriance of finish in the upholstery and the introduction of what may be called the elegancies of life. The French lead in this as in other things. The Pilain and Delahaye cars were palaces on wheels. Blushing maidens sighed and said they would like to go on their bridal tours in something like these. The Witherspoon buffet attached to the French cars was much admired and is certainly the real thing for a long journey. When we go on our next year's tour we will have one of them with us, well stocked, and the heartless landlord of the roadside restaurant can go and count his ill gotten gains, we will have none of him, and he will get nothing from us.



AMERICAN LOCOMOTIVE COMPANY'S CORNER.



FORD AND MALCOMSON NEIGHBORS.

ing exhibition of moving pictures, which attracted much attention and was greatly enjoyed.

The able committee, under the chairmanship of Gen. G. M. Smith, had made excellent preparations for the exhibition. The decorations, in pale green and gold, were in fine taste, while the classification of exhibits in grouping and subdividing showed how carefully the scheme had been worked out by men of experience and ability, and the club is to be congratulated on the large measure of popular approval that fell to their share as a reward to their efforts in furnishing an exhibition where manufacturers from all parts of the world are invited and welcomed, without restriction of membership in any trade organization, the only title to a place in the Automobile Club Show being that the manufacturer produced a legitimate product in which the public are and ought to be interested.

Of the attendance at the exhibition it might be said that New York was never

accomplished in harnessing the grosser elements of the earth and changing the dull labor of locomotion into a fleeting joy, swift-winged as a chariot of fire.

The main floor of the hall was subdivided into squares that gave ample room for promenading and viewing the cars on every side. The leading cars were arranged here and so dense were the throngs at times that it was difficult to get within earshot of the clever demonstrators who reeled off their minute descriptions with the eloquent grace of political spell-binders. Their glowing periods did not fall upon inattentive ears, and as a mere educational campaign the Automobile Show must have a far reaching effect. Of all the industries engineering is the most intensely exact in point of construction and the keenly observing qualities of the visitors cannot fail to sharpen their wits, just as the brass finishers of ancient Corinth became philosophers, or as the shawl weavers of Paisley all became poets.

Limousines and Landaullets showed up prominently, and there was an exquisite cosiness about them that once inside such a paradisaical contrivance one would be loath to leave it. These elegantly equipped cars show clearly that the manufacturer is catering to the growing desire for comfortable conveyances suitable for the use of families, and that the mere pleasure seeker whose joy it is to swallow up distances, doing nothing when he gets to the end of his journey, and coming back as wise as he went away, is fading into insignificance compared with the demand for comfort and utility in rapid conveyances in the multiplex affairs of domestic and business life.

It would be idle to attempt a description of the varieties of improvement in engine construction. One gratifying feature is the approaching degree of similarity in the general outline. Perhaps the most marked departure from this was to be seen in the Duryea rotary valve consisting of a revolving shaft into which spaces were cut

for admission and exhaust ports. It would be premature to pronounce on this important innovation, but the first glance shows that the force necessary in lifting valves held in place by coiled compression springs can be saved by the successful introduction of the rotary valve. A variety of new forms of carbureters were also in evidence, and it looks as if the perfect solution of this intricate problem is at hand.

The air-cooled engines seem to be losing in the ratio of numbers to the water-cooled variety. Several reasons have led to this. The increased weight of the water-cooled car is no longer such an impediment as it was formerly thought to be, while on the other hand the certainty of the cylinders remaining at a minimum degree of heat, not exceeding

order. The construction of rubber tires attracted much attention. Object lessons in brass finishing, electric-wiring, and even repairing were constantly going on in the presence of the delighted throngs who never seemed to weary of the mechanical maelstrom that buzzed and glittered around them. Gabriel horns were calling to each other from gallery to gallery. Calliope answered calliope. Electric flashes leaped into fiery life like fire flies in a summer night. Lamps and lanterns glittered like gold on every side. Spark-plugs glanced like stars in the milky way. A thousand wheels were busy singing their quiet songs in fairy nooks. Higher up were the galleries, full of the arterial blood of mechanical construction, restless in action. Here were raw materials budding and blossoming into burnished

Automobile Club of America's Annual Dinner

The annual dinner of the Automobile Club of America was held at Sherry's, a high priced eating house, in New York on December 8. The entertainment given by the after dinner speakers was the finest that we have ever enjoyed and the dinner was the poorest for anything of high pretensions. The victuals were half cold, the wine was penuriously limited and the waiting was mostly done by the guests. As a specimen, for one table no butter was supplied, there was only one salt cellar at a table of ten, and there was no dessert or coffee served.

President Colgate Hoyt acted as toast master in a marvellously happy and efficient style, the introducing of each speaker being a social treat. There



OBJECT OF MUCH INSPECTION.



MARVELLOUS ATTRACTIONS.

that of boiling water, is assured. The liability to overheating in the case of air-cooled cylinders is a variable quantity, varying with climatic conditions, and the remedy of applying cold water to heated castings has caused more fractures, perhaps, than all other causes combined.

Low tension magnetos are growing in popular favor and a double system of spark plugs are to be seen on many cars, the determination seeming to be that the necessary spark will be forthcoming at the psychological moment. The use of a lever on the top of the steering post to control the supply of gasoline as well as the point of explosion is now almost universal among the new models. A very compact and substantial form of this appliance is used on the Pilain steering wheel. A ball ended lever moving around a short arc controls the entire mechanism of the supply and sparking equipment and the speed lever may remain untouched during the longest journeys.

In the great galleries of the Palace the show of accessories was particularly interesting. A fine feature was the representation of many sections in working

beauty. Higher and higher the wilderness grew till in the seventh gallery the Aero Club's display properly crowned the mechanical collection. Here flying machines beat their great wings to wondering audiences. Great gas bags quivered in the air as if ready to leave. Models were in operation that seemed instinct with life, and in an inner chamber the wonder of the moving pictures of automobile and aerial contests gave a vivid vision of the intense energy of the marvellous machines in action. The most casual observer could not but be struck with the important advances that has been made in the science of propulsion in land and in air in a few years, and out of the wonder of it all comes the vision sung by the poet Tennyson:

"When I dipt into the future
Far as human eye could see;
Saw the vision of the world,
And all the wonder that would be."

"I think," said Mary, who was studying her geography, "that if 'Worcester' is pronounced 'Wooster,' then 'Rochester' should be called 'Rooster.'"

were fine speeches made, none of them dull and some of them extraordinarily witty. General Horace Porter was in his happiest mood, joking about automobiles and their drivers; but the greatest treat was given by Charles Francis Murphy, president of the Mark Cross Company, New York. His subject was, "The Automobile from the Horseman's Point of View," but he joked on everything from automobiles to women and balloons. For instance he said: Automobiles and women (God bless them) are the two dearest things on earth. To knock black and blue spots out of large fortunes the hustling head of our nation should join with the president of the Long Island Motor Parkway, and promote automobile industry. He should encourage all the expensive luxuries of women, as well as the full cradle. Give a woman the luxuries of life—she will dispense with the necessities. Give her only the necessities—her time is wasted resorting to contrivances to conceal the fact—like the woman whose husband complained of her bills at the Turkish bath. She looked at him with a patient air of

resignation and said, "Where else can a woman go who has nothing to wear?"

But Mr. Murphy must be heard to be appreciated.

The Rev. Wilton Merle Smith demonstrated that a clergyman can sometimes describe the cosy side of life in a peculiarly humorous manner.

There were about 520 persons at the dinner, embracing the best known and most distinguished people connected with automobilism.

General Porter said that he was sent to Paris at the time of the siege when the people were eating up all the cart horses. That was the origin of the expression, "dining a la carte."

He has automobilized in Switzerland, where the scenery is so steep that a farmer sometimes falls off his farm and gets run over by motor cars. He thought his was getting more and more to be a negative country. "We have telegrams without wires," he said, "families without children, carriages without horses, and

At the Central Palace

Among the list of cars exhibited at the Seventh Annual Show of the Automobile Club of America, special attention was given to the exhibits of the following, partly on account of the popularity already acquired by the makers, and partly on account of the marked improvements which could be readily distinguished by the experienced in examining the exhibits.

AEROCAR.

The special features of this car as seen in the new model were its elegant outline shown off by a wheel base of 112 in. Types were exhibited of the water-cooled as well as the air-cooled type. The steering is of the worm and nut type, shaft drive and sliding gear transmission. Ignition is of the jump spark variety, and the new model shown was of the four cylinder type developing forty horsepower. A multiple disk clutch is used. The car has the double excellence of easy manipulation and easy running.

ness of construction that gives an indication of durability in this high class car which gives assurance of a reliability in service which would be difficult to surpass.

CARTERCAR.

During the last year Detroit, Michigan, has come to be one of the chief centers of the automobile industry and the exhibit shown by the Motor Car Company of Detroit was an excellent one. It embraced no less than six models, including touring cars, runabouts and delivery wagons. A new type of transmission is a marked feature of their cars. It is noiseless and has the rare quality of changing easily and noiselessly. The cars have the qualities of elegance and durability.

DELAHAYE.

The French cars represented at the exhibition were as usual among the best. The Delahaye showed a finely finished 60 horse power, four cylinder engine of admirable workmanship and exquisite finish.



LONG ROW OF MAXWELL-BRISCOES.



ATTRACTIVE RANGE OF RAMBLERS.

maybe some day we will have banquets without speakers." (The good Lord hasten the day.—Ed.)

Mr. Murphy expected that legislation would go on in New Jersey until every automobilist would have to send a messenger boy ahead to warn the police that he is coming.

The automobile is come to stay and to slay.

A family without children is not so bad as a family without a husband.

Diamond Tires Improved

In announcing its product for 1907, the Diamond Rubber Company state that a newly discovered material is to be used in their new tires, which will greatly improve their quality.

Dealers in the Smoky City are anxious to get together for an automobile show this winter, and President W. N. Murray, of the dealers' association, is making arrangement for a display there, probably the first week in March.

BRASIER.

Mr. E. B. Callaher, New York, showed a fine exhibit, comprising several of the celebrated Brasier cars. The 36 horse power car was a beautiful specimen of the high class automobile. With a wheel base of 120 inches and weighing 2,600 lbs., the car presented a massiveness of construction that gave promise of great durability. Seated for seven persons the appointments were the acme of perfection, while the easy running qualities of the car are of the best. The price is \$8,000.

BERLIET.

The American Locomotive Automobile Company, Providence, R. I., has in a short time come to the front rank as constructors of high class cars. The 50 horse power Berliet shown by them is unquestionably one of the best made cars manufactured in America. With a wheel base of 126 ins., and weighing nearly 2,000 lbs., it is as readily controlled as the smallest touring car. The four cylinders are cast in pairs with the valve arrangement at the sides. This is a massive-

The cylinders are cast separately and water cooled. A special transmission gearing shown for the first time and also a carburetor with automatic feed were new and valuable features in this splendid illustration of French workmanship. The springs were peculiarly elastic and gave a degree of flexibility to the car that renders possible the matter of tire troubles being altogether eliminated from the automobile of the future. The superb interior accommodations and finish of the car must be seen to be fully appreciated. It seems the perfection of the upholsterer's art.

DORRIS.

A fine model of this car, which is rapidly coming into favor, was exhibited. It has a compact and smart appearance, is seated for five persons and at a cost of \$2,500, compares very favorably with cars that are much higher priced. It has a four cylinder engine of twenty horsepower, with jump spark ignition, three forward and reverse speed, and is just the car for family or small parties.

DURYEA.

The enviable reputation won by the makers of the Duryea car was admirably sustained by the exhibit this year. All the old reliable features were present, including the lever steering gear. A feature that attracted much attention was a rotary valve of which more will be heard in the future. A double Victoria, with three cylinders arranged under the seat made an elegant and compact appearance. A number of orders were given for this beautiful car at the price of \$2,400.

FORD.

The Ford car was so closely surrounded by interested spectators during the entire exhibition that it was difficult to secure a close inspection of the famous runabout. At a cost of \$500, the Ford car is the

ignition is of the jump spark variety. The car possesses the quality of easy running in a marked degree and has very properly earned its melodious name.

JACKSON.

An extra large exhibit was made by the Jackson Automobile Company, four models being shown, the variety meeting almost every requirement from the runabout to the heavy touring car. Their work has all the elements of grace and strength in a marked degree, and the company seem eminently successful in their effort to suit every variety of purse or preference. The forty-five horse power model was particularly noticeable. It was furnished with sliding gear transmission, shaft drive, with three speeds forward and reverse.

anxious to take their friends with them on an excursion. Not only are the details of engine construction of the highest standard, but there is a strength about the frames and springs that stamp it at once as the product of master mechanics. The Maxwell deserves its growing popularity.

MARION.

The Marion Motor Car Company exhibited among other cars a fine new runabout of 24 horse power furnished with high tension ignition and Hassler patent transmission with two forward and reverse speed. The car weighs about 1,600 pounds, and is finely adapted for hill climbing as well as for general utility purposes.

MITCHELL.

The three models shown by the Mitchell Motor Car Company attracted much attention. The prices are such that the growing popularity of these trucks are not to be wondered at. They range from \$1,000 to \$2,000, and are adapted for every variety of work. The engines are all of the four cylinder variety with shaft drive and sliding gear transmission.

MOLINE.

The three models shown by the Moline Automobile Company comprised a 20 horse power runabout, a 24 horse power touring car and a 35 horse power four cylinder car. The cars are furnished with sliding gear transmission, shaft drive, quadruple coil and storage battery ignition. The workmanship is only equalled by the fine designs of these cars, every detail being admirably adjusted with a symmetry that would be difficult to surpass.

PILAIN.

Beside the Delahaye was another French car of equally fine workmanship but with many peculiarities entirely its own. Chief among these is an entirely new principle of chainless drive. The power is transmitted to the road wheels by means of a pair of side ball and socket joints connected to spur gears, which are enclosed in a separate casing hung from the side frames and entirely separated from the back axle. The work of the Pilain Company, of Lyon, France, represents the best mechanical work in France, and France worthily holds its place in the front rank of the mechanicians of the world.

PREMIER.

A fine example of the gentleman's runabout was exhibited by R. M. Owen and Company, agents for the Premier car, and also a 24 horse power touring car furnished with four cylinders, and selective type of transmission. The appearance of this fine car was enhanced by the splendor of the furnishings in upholstery and the red painting harmonized beautifully with the interior decorations.



E. H. BRANDT AND FAMILY IN THEIR CORBIN CAR, IN THE BERLIN (CONN.) FAIR AUTO PARADE.

ideal of that large class of our suburban population who are not as rich as they should be, but who are willing to sacrifice something of their necessities, if need be, to obtain an automobile. The Ford car meets this want in an admirable way. Here is a perfect machine of the very best materials, with two speeds forward and reverse, weighing about 1,000 pounds. One marvels how it can be made for the money. The four cylinders are vertically arranged under the hood, with direct drive. It is the best automobile for the price now made in America.

GLIDE.

The Bartholomew Company made a great hit with their exhibit of a six cylinder model of sixty horse power. The machinery is particularly strong with direct bevel gear drive and a selective type of sliding gear transmission with the three forward and one reverse speed. The

MARMON.

In the truck department the manufacturers undoubtedly excelled any previous exhibition. Among the foremost was the Nordyke and Marmon Company who showed a 24 horse power and a 35 horse power Marmon. Furnished with four cylinders, direct shaft drive, and jump spark ignition, the trucks were models of strength and simplicity. The air-cooled system has proved eminently satisfactory in the working of the Marmon truck.

MAXWELL.

The Maxwell-Briscoe Motor Company, of Tarrytown, N. Y., made an exhibition that attracted a special audience of its own. The Maxwell runabout costing \$825, is undoubtedly in the front rank of American cars. Substantially built and elegantly finished, it is the ideal car for a large class of people who are not over

RAMBLER.

Thos. B. Jeffrey & Co., Kenosha, Wisconsin, made a fine exhibit of their popular car. With a capacity for five persons and with a wheel base of 112 inches, the car had an elegant appearance and at the price, \$2,500, well deserves the popular favor that has come to it. The car has made splendid records in every kind of climatic condition, and seems to be a great favorite among tourists who go on long journeys in unfrequented parts of the country. The cylinders are of the vertical type with the valve arrangement on top of the cylinder heads. The engines are furnished with water cooling apparatus and flat tube radiator.

REO.

The Reo exhibit was the center of a continual crowd of spectators. The Baby Reo seemed a never-ending source of delight to the younger element, while the elders were evidently greatly pleased with the 20 horse power, two cylinder touring car. The horizontal cylinders find many champions among the engineering fraternity who claim that the top-heavy construction of the superimposed vertical cylinders induces vibration, while the horizontally opposed cylinders, to a great extent are free from vibration. The price also, \$1,250 is an attractive element in a car so strongly built and so finely equipped.

STODDARD-DAYTON.

The Stoddard-Dayton Company, Dayton, Ohio, exhibited three samples of their cars. Model H is a finely designed runabout for two persons. The cylinders are of the vertical type cast in pairs with the valves opening in opposite sides. The cooling is of the water variety with a tubular radiator. There are three forward speeds and reverse. With a wheel base of 88 inches the runabout has the double quality of lightness and strength and has come into much popular favor during the last season.

ST. LOUIS.

Three models were shown by the St. Louis Motor Car Company, one a 35 horse power power cylinder touring car, with bevelled gear drive and jump spark ignition, three forward speeds and reverse. The car has a seating capacity for seven persons and compares very favorably with cars that are much higher priced.

WAYNE.

The 50 horse power touring car exhibited by the Wayne Automobile Company attracted much deserved attention. With a capacity for seating seven persons it has all the elements of a high class touring car. The two other models, a runabout and a small touring car gave fine illustrations of the capabilities of the company to furnish cars suited for any particular kind of service.

TRIUMPH.

The Triumph Motor Car Company has sprung at once into victory. Their 35 horse power runabout is a model of fine designing, finished exquisitely and is adapted for general work, either city or country. The ignition is of the low tension magneto variety, and in severe tests has never failed to work satisfactorily.

WESTINGHOUSE.

Among the cars recently introduced to a discerning public, the Westinghouse takes its place at once among the foremost. With a weight of 2,800 lbs., the 40 horse power car shown seems as if built to endure any kind of traffic. The long wheel base, 122 ins., and long flexible springs give it the easy riding quality so essential to touring cars. This car runs easily 60 miles an hour and is already a great favorite among the members of the automobile clubs.

WHITE.

In a select corner on the main floor, the White Company, of Cleveland, Ohio, covered themselves with renown. A whole battalion of white capped demonstrators showed off the qualities of the white steamer to fine advantage. Fresh from a recent victory under the rigorous rules of the Automobile Club of Great Britain, the White steamer looked splendid, and it is a matter of pride and gratification to many to see that the steam engine holds its own against the internal combustion machines. In the absence of smell and smoke or noise or vibration and ease of manipulation and running, the White steamer has been declared by competent authorities to possess many advantages, and the rapidly increasing popularity of the machine bears out the opinion. It is needless to say that the general equipment of the cars exhibited by the White Company was of the best.

The Garden Show

The Central Palace Show gave the public an opportunity to examine certain makes of cars. The Madison Square Garden Show, January 12 to 19, will bring into view other prominent automobiles manufactured in this country and abroad. The show in the Garden last January was a great success. This year it will be larger and better than ever. The decorations alone will cost nearly twice as much as last year and over \$50,000 will be spent on this feature alone.

A list of the prominent cars to be seen at the Garden under the auspices of the Licensed Automobile Manufacturers, is herewith appended:

Apperson.	Matheson.
Autocar.	Northern.
Buick.	Oldsmobile.
Cadillac.	Packard.
C. G. V.	Panhard.

Corbin.
Clement-Bayard.
Columbia.
Darracq.
De Dietrich.
Decauville.
Elmore.
English Daimler.
Fiat
Franklin.
Haynes.
Hewitt.
Hotchkiss.
Isotta-Fraschini.
Knox.
Locomobile.
Lozier.

Peerless.
Pierce-Arrow.
Pope-Hartford.
Pope-Toledo.
Pope-Tribune.
Renault.
Rochet-Schneider.
Royal-Tourist.
S. & M. Simplex.
Stearns.
Stevens-Duryea.
Studebaker.
Thomas.
Walter.
Waltham-Orient.
Winton.

This Year's Shows

The officers and members of the various associations in connection with the automobile trade are seriously discussing the necessity of holding separate exhibitions of their own, the real cause of this divergence being the fact that there are no two buildings in New York City conveniently near enough to each other to accommodate all who have a right to participate in this exhibition.

If all the groups that are desirous of promoting exhibitions of their own were able to obtain suitable buildings for the purpose, the list of exhibitions next winter would be about as follows:

Automobile Club of America—Show open to all.

Association of Licensed Automobile Manufacturers—Show of Selden patent cars only.

American Motor Car Manufacturers' Association—Show of cars not licensed under Selden patent.

Importers' Automobile Salon—Show of foreign models only.

Association of Electric Vehicle Manufacturers—Show of electric vehicles and of commercial cars.

Motor and Accessories Manufacturers, Incorporated—Show of accessories and parts.

Original Trappers.

There are persons with mental resources among the policemen of Hartsdale, a village north of New York. They have arranged something new in the line of traps sets for automobilists. They have staked off a measured straightaway stretch of a quarter mile, and instead of the primitive flags used for most auto-traps have affixed a semaphore to a telegraph pole on the main road between Scarsdale and Hartsdale. A constable who crouches in the weed covered ditch at the roadside holds a rope by which the semaphore is worked. When a scorcher speeds past him he drops the signal, which is the cue to his fellows at the other end of the quarter mile to start their watches.

1907 Frayer-Miller

On this page is an illustration of the Frayer-Miller 1907 model 50 H. P. touring car cooled by air in the manner that has come to be described by the name Frayer-Miller. This, as is well known, is a method of cooling the motor by a draught of air from a blower fan that is geared from the motor crank shaft, the air being blown through jackets that surround the cylinders.

The utility of air cooling was strikingly demonstrated when a Frayer-Miller car in the New York Motor Club's economy run, worked through a fierce snow blizzard in the Berkshire Hills beating by hours all competitors.

The makers of the Frayer-Miller car have always maintained that practically cylinders of any size could be cooled by this method, and to prove their assertions built and entered in the recent Vanderbilt race three cars equipped with motors of 7¼-inch bore. As is well known these motors remained perfectly cool at all times during the race. The motor in the new model is similar in design to the three Vanderbilt racers, the only real dif-

The Frayer-Miller is not a copy of any foreign car, and is perhaps the most distinctively American car in design and workmanship of any automobile on the American market.

In addition to this new model The Oscar Lear Automobile Company will continue to build the 24 H. P. touring car with both "Runabout" and touring car bodies, in addition to a 5,000-pound truck, all of which were shown at the Independent Show in New York, December 1 to 8.

The Triumph

The Triumph is a new runabout made by the Triumph Motor Car Company, of Chicago. Price, \$2,800. Model A has four cylinders vertical cast in pairs with water jackets and develop 30 H. P. The valves are mechanically operated all on one side. Transmission is sliding gear three speeds forward and reverse. Drives direct on high speed. The wheels are artillery type, 108 inches wheel base. Springs semi-elliptic 55 inches, rear 40 inches. Very full equipment of lamps and operating conveniences.

Patterson, of the *Chicago-Herald*, after a few days of it called up one concern on the 'phone and asked plaintively: "If I come out to see you do I have to go through the factory?"

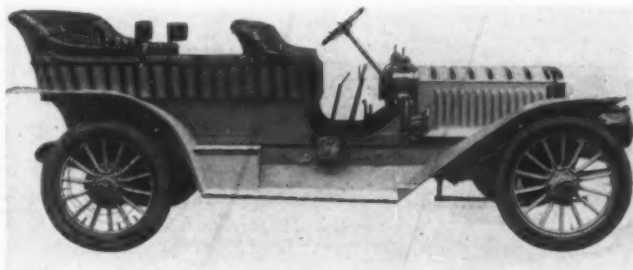
Eustis, of the *New York Globe*, explained at one place, when being started on a factory tour: "I saw the engine room and blacksmith shop last year."

Noel, of the *New York Commercial*, meeting an old acquaintance at one company's office, leaned over and cautiously whispered: "Say, old man, how long does it take to go through the factory?"

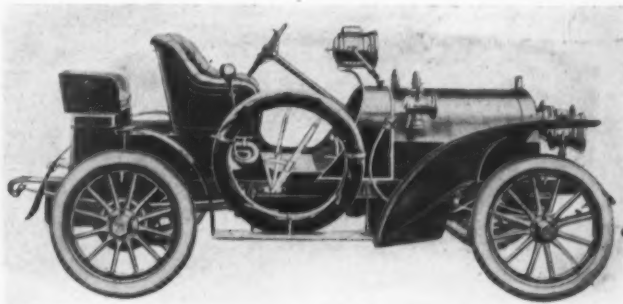
And, withal, they get the business.

Sense and Prejudice of Dogs

My daughter has a little dog which displays mortal antipathy to riding in an automobile. Now, this little cut shows a decided liking for riding in a carriage pulled by horses, but put him on the softest seat of a wind-protected tonneau and off he jumps at the first opportunity, and he stands not upon the order of his going, but springs off when the car is running at its highest speed.



FRAYER-MILLER, 1907 MODEL.



TRIUMPH RUNABOUT FOR 1907.

ference being in size. It is cooled precisely in the same manner as the 24 H. P., which has made a name for itself among air-cooled motors.

The new model, as the illustration shows, is a large and handsome car of 122-inch wheel base, motor rated at 50 H. P., equipped with 36-inch wheels, 4½-inch tires and 24 H. P. ball bearings are used throughout the machine. The rear of the frame is raised over the rear axle so that the center of gravity of the new car is unusually low and yet the clearance, 12 inches, is considerably above the normal. The design of the motor is absolutely novel and throughout originality is one of the most striking features. The most striking difference in design over the 24 H. P. or previous models is the use of a single cam shaft and adjustable push rods so that the lift of the valves is absolutely within control.

The price of the new model has been fixed at \$4,000.00 with complete equipment of lamps, generator and horns, and the weight of the complete machine is stated at 2,750 pounds.

Patient Pilgrims

This is the time of the year when the "Automobile Editor" of the metropolitan daily wanders the length and breadth of the automobile industry seeking advertising for "show week." He struck Detroit in great numbers. He is not inured to the endless task of paying his respects to the products and factories of the trade. His literary bluff at the use of such words as torque and synchroization is misleading. Detroit showed him all its wonders in and of automobile building. He escaped no one with a car to stun him or a factory to marvel at. It was really cruel to make him walk miles between rows of machine tools with his face frozen into the "simply wonderful" smile. Sometimes he rebelled. Examples:

Wetmore, of the *New York Mail*, was given a "Seeing Detroit Advertisers" ride in a Packard "Thirty." As the car drew up in front of the last establishment on his list he jumped out, walked slowly to the door, fumbled the latch gingerly and then flew back to the car. "I'll be blanked if I go in; they might show me something."

There is no accounting for the taste of dogs in these matters. I once was acquainted with a dog which had a partiality for riding on locomotives, and he rambled at will over all the railways in Great Britain, taking free rides upon the engines. This dog displayed strange likings and antipathies. He never rode farther than over one division on an engine, and when he had settled upon going to some particular point he knew which engine would take him there.

Sometimes he would visit about a station or town for a day or two, then he would start upon his travels again. One day he was waiting at Carlisle for a train to come in and he happened to be sitting with his tail across the rail where a passenger train was standing. The train moved on quietly and cut off Jack's tail. He took it as a personal outrage and never was seen in Carlisle afterward.

When Jack made up his mind to take a ride, he generally waited on the platform, near the water column, until an engine came up. Then he would look carefully at the enginemen, and if one

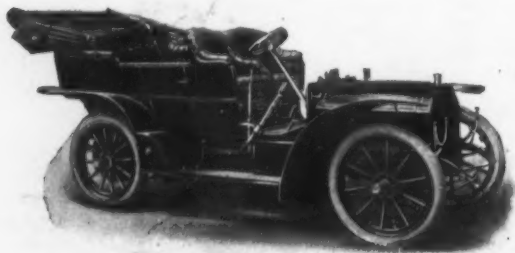
was red haired he moved away. He was never known to ride with a red-haired person. He preferred old acquaintances to strangers; but sometimes he showed a disposition to make new acquaintances so long as they were free from lurid hair. Most of the enginemen from Brighton to John O'Groat's knew him, and were ready to share their lunch with Jack.

One day at Rugby Junction Jack had made up his mind to change engines. He had seen an old friend on a locomotive that was starting out, and he attempted the dangerous feat of jumping upon the moving engine. He missed the foot plate and landed under the moving wheels, which ended his career.

SAM.

Smith and Mabley Simplex

Smith & Mabley, of New York, will exhibit at the January Show their Simplex car, which is 30-35 H. P., capable of carrying five persons. The principal changes from last year's model are that ball bearings have been placed in the wheels, a new rounded type of honeycomb radiator is fitted, a Simplex Remy Magneto is used and the carburetor is improved to make the motor more



S. & M. SIMPLEX—30-35 H. P. 1907 MODEL.

powerful. The cylinders are $4\frac{1}{2}$ by $5\frac{1}{2}$ stroke, transmitting power by double chain. There are four speeds and reverse. The frame is of pressed steel.

Like Leaving a Glue Pot Inside a Fiddle

The not uncommon case of a careless surgeon leaving some of his utensils inside of a patient was paralleled by an automobile repairer, as told by the Motor World, of Glasgow. Two ladies were riding in an automobile and they were annoyed by continual bumping of one of the wheels.

Calling the owner's attention to this, the owner and the chauffeur got down to ascertain its cause. Examination of the four Dunlop tires failed to discover a puncture, but a hard lump in the off-side rear tire suggested its removal. When the outer cover was half-stripped, the end of a ten-inch tire lever was found, the lever lying in between the tube and cover. Neither the tube nor cover was the worse for its inadvertent companion. Nobody can say how long it had lain there, of

course, although the Diamond Company say that possibly it had been jammed where it had done no harm for the whole time the tire had been in use.

New Pope-Tribune Runabout

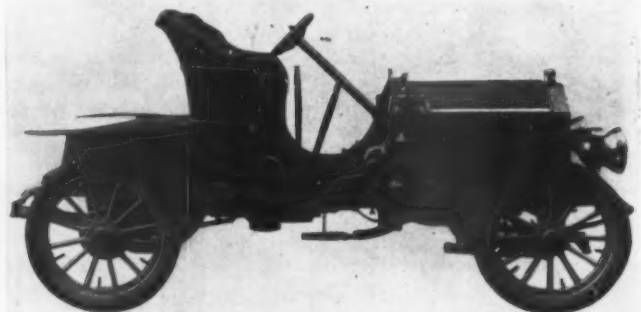
The Hartford factory of the Pope Manufacturing Company has just turned out the new Model X, Pope-Tribune runabout, which will be given the entire attention of the Hagerstown, Md., plant during 1907.

The car which is shown on this page will develop from 18 to 22 H. P. The engine is an exact copy of the engine of Model F, Pope Hartford, and is of the four cylinder vertical type. The cylinders are three and one-fourth inches bore and with a stroke of four and one-half inches.

In the engine, all cylinders, piston rods and piston rings are ground to a mirror finish, insuring almost perfect compression. The valves are located in the cylinder heads and are operated by walking beams and tappet rods. The cylinders

culated freely in the A. C. A. Show. When the talk reached Mr. Ford, it made him hot all through.

That and an advertisement inserted in one of the New York papers during the show week was apparently directed at the vital part of the Ford runabout. The consequence was an announcement from the Ford Motor Company in New York papers containing one of the most startling challenges this strenuous business has ever called forth. In a word, Ford challenged any other runabout in the world listed at less than \$1,000 to a contest with his \$500 runabout; and he proposed a series of tests, which, if survived by any car, would give it a reputation that would sell the output. He insisted that the car be a stock model right out of the factory; that it be taken apart, and every part examined by a committee of the best engineers in the country; that the car be reassembled, and then subjected to the road tests. Eight of these he outlined. He would run the full gamut of speed and hill-climbing contests, and,



1907 POPE-TRIBUNE RUNABOUT.

are cooled by a water pump fastened to the top of the engine crank case and driven from the cam shaft. All gears are run in an oil tight case, protected from dirt and mud.

The transmission is ball bearing with three speeds forward and one reverse of the sliding gear type. The drive is to the rear axle through the propeller shaft and double gears. The upholstery will be of fine hand-buffed leathers and the cushions hand tufted with the best curled hair. The selling price of the runabout has not yet been announced.

The car has been tested over 3,000 miles of the roughest roads in Connecticut and Long Island. It was driven to Hagerstown from Hartford by Harold L. Pope, manager of the Hagerstown factory. The distance is over 400 miles and he made it in 23 hours actual running time.

A Fierce Defiance

The success which Henry Ford has achieved with his famous \$500 runabout car has excited considerable envy which was manifested by certain inuendoes cir-

finally, an endurance run to the death—until all but one car should have broken down finally. He would insist that these tests be carried out, as he expresses it, in the full limelight, and that the loser was to sign an affidavit stating that the victorious car was the best car in the world for less than \$1,000.

It is needless to say that the challenge was not accepted.

An exhibit that excited much interest in the A. C. A. Show was the demonstration of the Diamond quick detachable tire on the Marsh rim. There were crowds watching the operation most of the time. The genial representatives of the Diamond Rubber Co. also proved a strong attraction, and their ministering mercies sent away many a visitor feeling that he had fallen into a house of friends.

One of the cars made by the Mason Car Company of Des Moines, Ia., recently climbed the steps of the Court House; a feat that excited great admiration.

European Notes and Comment

By A. F. Sinclair

The Horizontal Engine

This type of motor is less common in Europe than in America. In Britain only three or four firms manufacture it, and although an accession to their number took place recently when a firm named the New Engine Company placed a horizontal machine on the market, their advent synchronized with the exit of the Wolseley. The other machines of the kind having any standing are the Arrol-Johnston and the Wilson-Pilcher. It was suggested recently that the Arrol-Johnston company, who make a very fine vertical engine also would cease the manufacture of the older horizontal type, but I am pleased to hear that such is not the case. The horizontal motor made by them is one of the most efficient machines running, and it would be a pity to discard it for what is only after all a whim of fashion, provided they can sell their output. The Wolseley company have, however, decided to abandon the machine which has so faithfully borne their name during the last seven years, and to manufacture only the Siddeley car having a vertical engine, which they have been making for several years. The Wolseley is a good car in its way, but the chain drive used is somewhat noisy, and its general construction does not lend itself to modern improvement and refinement. It will be seen therefore that while the number of vertical engines increase rapidly, the horizontal type makes no advance so far as Britain is concerned. On the Continent of Europe it is very much the same thing. The horizontal engine has a certain vogue among a limited class, but the overwhelming majority of machines are vertical carried longitudinally on the front of the frame.

The London Show

The greatest show of the year so far as the United Kingdom is concerned, was held in a large show building situated in the West End of London, and known by the name of Olympia, during November, and was almost an unqualified success. The qualification is only introduced to enable me to refer to the growing inconvenience arising from what may be described as extraneous attractions. The elaborate decoration of the stands, in which the exhibitors vie with each other at an enormous aggregate cost, and splendid musical performances, have the effect of attracting vast crowds who are worse than valueless, in that they buy nothing and crowd the show to the annoyance and disturbance of potential purchasers. With this preliminary growl to let off steam, it may be said that on the whole the show was, as a collection of vehicles of the pleasure type, the most complete as-

semblage that the world has seen up till now. That may appear a little bombastic but it is none the less a fact. The whole floor of the east building was covered excepting the passages, of course, by pleasure cars, all industrial vehicles, boats, and other forms of motor power application being rigidly excluded. With all that

were on show, practically every British made car was staged, and there were besides a few American makes. Internal Combustion engines were of course the greatly preponderating number, but there were also a couple of steam makes, and an equal number of firms' output represented in which the motive power was electricity. The White steamer made a very good display, the new steam generator being a subject of interest. All the Wintons shown had verti-



Copyright by Charles H. Sawyer. By courtesy of Judge James B. Dill.

LADY-LIKE BIRCHES.

space available it was found possible to stage nearly six hundred cars, made by three hundred and fifty different firms. The spaces were strictly limited in size, but that notwithstanding the leading firms who had applied early and secured the maximum area allowed made a brave show. The leading makes of all Continental countries engaged in the industry

cal engines, while the Maxwell and Cadillac stands had both cars equipped with four cylinder vertical engines as their piece de resistance. The Ford was the only other American car represented, its peculiar steering gear causing a good deal of notice and comment. One of the most prominent novelties in the show was, however, the collapsible tonneau of the single

cylinder Cadillac. The attendant on whom fell the duty of demonstrating its utility and ease of conversion from a two-seater to the ordinary side-entrance four seated machine, had a trying time. There was always a crowd about, and closing time must have found him pretty well exhausted.

The Six-Cylinder Engine

Probably the most important development during the year has been the enormous extension of the use of six-cylinder engines. In the show of November, 1905, there were some eight or ten makes of engines having six cylinders, and grave doubts were cast by many—the writer among the number—as to there being a market for a machine which—whatever its advantages—must be very severe on fuel, besides having all the additional complications of parts involved in a couple of extra cylinders. The makers do not, however, appear to have been afflicted with such doubts, as in Olympia there were no less than forty-six makes of six-cylinder engines. When the six-cylinder engine was brought on the scene a few years ago as a business proposition by the Napier Company the French makers made much fun out of the lengthy machine, and if my memory is not at fault there was not a single six-cylinder motor shown in the Paris show of 1905. The Frenchmen appear to have found six-cylinder salvation since then, because of the total mentioned, nine makes are French, although only three of the leading makers—Clement, Darracq and Mors—are amongst them. The other foreign countries showing six-cylinder machines were: Belgium, three; Italy, two, and Germany, one. The remaining makes, thirty-one in number, were all British, from which it can be fairly claimed that this development, whether an improvement or the reverse, has been principally fostered in Britain.

Home-Made Cars Booming

The advance of British cars in the matters of design and finish has been very pronounced indeed during the year, and they now bid fair to capture a large part of the home market from France. The idea entertained by American makers of capturing British markets is not, in my opinion, very feasible. That there will always be a market for foreign cars in this country is very probable, but British manufacturing methods are settling down in the direction of standardization and specialization in a way which, everything considered, it will very soon be impossible for any foreign country to surpass. The methods which have enabled a company to manufacture in an unprotected State and sell their cars in opposition to the best foreign manufacturers in the world, while turning over a profit of £228,000 on a capital of £192,-

000 in one year, provide such an enormous range for reduction of prices when the pinch comes, as to render outside competition terribly uphill work. British makers have adopted, and in some cases improved on, American manufacturing methods, and they have combined with these German chemical tests and British engineering tests of materials. Until they have had at their disposal engineering handicraftsmen unsurpassed in the world for the production of finely finished workmanship, and these all combined have operated to enable British makers after a struggle of ten years to reach the position attained at the recent show, the position of being the equals of their foreign rivals in the eyes of their own countrymen. American makers having cars to export are more likely to build up a permanent profitable business in British colonies than in the markets of the United Kingdom.

Unscrupulous Competition

While the manufacture of motor cars progresses by leaps and bounds in Britain, the business side being conducted according to keen but fair methods, it cannot be said that the tyre manufacturing industry is equally fortunate. It is quite true that the British makers of motor car tyres are holding their own fairly well against foreign competition, but it would be vain to allege that the warfare is carried on on either side in accordance with a close adherence to fair business principles. It may of course be said that all is fair in love and war, that the end justifies the means, and such other excuses for unfair dealing, but it is to the credit of British business life that it is seldom found violating certain unwritten laws of equity which prohibit underhand and unsavory tactics. It is a little difficult without laying one open to an action for libel to say all that could be said on the subject. In a competition held some time ago, for instance, one company who make entirely reliable tyres, so far as pneumatic tyres can be described as reliable, wishing to make sure of getting the advertisement of having their goods figuring in the contest, offered to supply their tyres free to some of the competitors, as well as to furnish repair depots along the route, and were surprised that their offer was refused. They need not have been, because another company who offered the same terms with the addition of £100 per car, also had their offer rejected in favor of a third company whose tyres were certainly no better. How much the concern last referred to paid for their advertisement is unknown, but it must have been a very tidy amount. Smart business, it might be said, but as it happens this cut-throat form of competition prevents not only the companies who adopt such tactics from earning decent profits, but they keep people who conduct business on or-

dinary profit-earning lines from having a look in. It is a little difficult to discern what the ultimate object of the malign policy hinted at really is, but it would not surprise me if it resulted in a combination of interests so far as the British makers are concerned. But who lives will see.

The German Industry

The British motor manufacturing industry is not alone in desiring that the supremacy of France should be challenged. Germany also is making remarkable progress as the display of home-made cars in the Berlin exhibition bore witness. This show was held during November in a new building of substantial stone-work with a glass roof erected in the zoological gardens of the capital city especially for housing such displays of German manufactures. Foreign articles are also tolerated, and in this case there were a number of British, French, Italian and other cars shown, but the heavy tariff on imported machinery constitutes a very broad hint that Germany believes in the policy so poetically expressed by the Scots proverb, "Our ain fish-guts for oor ain sea-maws." But to my tale. The show was opened in the presence of a large number of German blue-blood folk, from the Crown Prince and Princess, Prince Henry of Prussia, down through a long list of notabilities, while one day later on the Kaiser himself paid the exhibition a visit. While neither so extensive nor so international in character as the Olympia display, the Berlin exhibition demonstrated with sufficient force the amazing advance made by the German industry in the past year. With Britain going so strongly, Italy making rapid progress, and now Germany showing vast resources, it does not look as if France were to go on exporting cars to the present extent for long. We have been in the habit of associating the German industry with the names of a few cars, Mercedes, Berz, and one or two others, and to find scores of different makes on view, many of them splendid machines, was rather an eye-opener. The German industry will ere long have to be reckoned with both within Germany, and to a less extent abroad. Indeed, should the manufacturers combine to utilize the *kartel* system, we may yet have six-cylinder cars dumped on our shores at £100 each!

New Year's French Races

There has been a bit of a flare-up in France by an article in *Le Matin*, one of the most influential daily papers in that country, advocating the suppression of races on public roads. The article stated that the French makers were tired of the expense involved in such contests, and would be glad if they were abolished. Whereupon there arose unto high Heaven a most vehement shriek of protest from

many of the leading makers, the consequence being that races for next year may be considered as a settled question. But they will be a little different from those held hitherto by the French Club. The English Club principle of limiting speed by limiting fuel will probably be adopted. But it is not proposed to be too exacting, for whereas in the Tourist Trophy race the cars were required to do 25 miles per gallon, in which the winner went well on for 40 miles an hour, in the French races the limit is about $9\frac{1}{2}$ miles per gallon (30 litres per 100 kilometres). Making every allowance for the extra weight, there does not appear to be any serious retarding of all-out speed in a gallon to every $9\frac{1}{2}$ miles. In the Grand Prize race, to which these regulations refer, there will probably also be a tyre competition, a form of trial which has all along been shirked by the big clubs. There is a strong probability that detachable rims will be prohibited as they are supposed to give an unfair advantage. A new feature will be

in France are not to be suppressed, a possible contingency which drove some of the French makers a long way towards hysteria.

The Holsman Automobile

The Holsman automobile, made by the Holsman Automobile Company, of Chicago, is a buggy-like motor car, having been on the market for several years, and has lately grown in favor in the West. The wheel base is 76 inches, and the tread either 56 or 62 inches, as desired. The wheels are 44 inches in front and 48 inches in the rear and equipped with solid tires. The motor is a four-cycle, two-cylinder horizontal, with 4-inch bore and stroke, and is rated at 10 horse power. The motor is suspended on a steel sub-frame in the center of the car. The carbureter is a float feed with automatic auxiliary air inlet. Ignition is by jump spark from a double coil and dry batteries, two sets of five cells each of the latter.

The "Stanhope Special" is one of their newest models. It is new in every sense of the term, and embodies features that have not before been employed in electric vehicle construction. However, these features are in no sense experiments or radical in principle. Each has been tried in a most thorough manner and its utility and value demonstrated beyond question.

The principle of construction adopted for the "Stanhope Special," through which the motor, battery, steerer and controller are component parts of the chassis, leaves the body of the car independent. Because of this, it is possible to change the style of body used with the car without interfering in any way with the working parts of the machine. The designer had this in mind when working out the details of this type of car, and a choice of two distinct bodies is offered—Stanhope and Coupe. Each is readily adjustable.

Rigidity of construction and simplicity



THE HOLSMAN AUTOMOBILE.



POPE-WAVERLEY, MODEL 53—STANHOPE SPECIAL.

the introduction of a contractor to organize the race in the same way as if it were on a track. This individual will make all the arrangements along the course, prepare barricades, provide police, prepare the road surface, erect stands, pavilion, tents, place the necessary sign banners, and so on, relieving the club of the worry involved in all such work. There is under consideration a proposal to select one route of suitable contour for future races, so that semi-permanent dwelling houses may be constructed for occupation during races, stands made permanent structures, and other work also of a more lasting nature. Should this scheme be carried into effect the course will be used for all forms of competitions. But the main point is that speed contests

being used. The lubrication is by automatic force feed oiler. Power is transmitted to a countershaft by two silent chains. Control is by throttle lever. There are two brakes both operated by hand, one acting on the rear wheels and the other on the reverse sheaves. The car is low priced, selling for \$650.

Model 53 Stanhope Special

As a type of motor car singularly and most admirably adapted to city and suburban use, the smooth-riding, easily operated Pope-Waverley Electric has gained a superiority and enviable prestige. It is primarily a car of luxury, and one that the women of the family may use and operate with absolute confidence and security to themselves.

of operation are combined in this type of car in a most admirable and satisfactory manner. The chassis of steel is framed with motor, battery, steerer as component parts. The controller is operated by a lever immediately under the steering wheel. Its position conforms to the natural position of the driver, and its proximity to the steer wheel practically permits its rapid and easy manipulation by the steering hand.

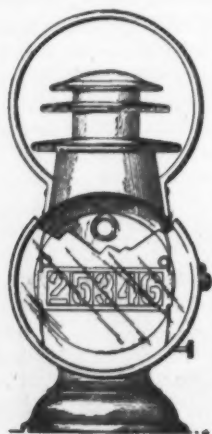
The battery equipment is thoroughly adequate and is more powerful than usually specified for these pleasure vehicles. It consists of 30 cells of 11 M. V. or W. B. size, and provides for long mileage and consequent increased enjoyment from the car, more especially in hilly districts.

Patent Office Department

Our Patent Office Reports present a brief epitome of the most notable improvements in automobile mechanism from month to month. Our descriptions are necessarily short, but readers interested in any particular invention can have full details forwarded by applying to the Patent Office at Washington, D. C.

Numbering Device for Lamps

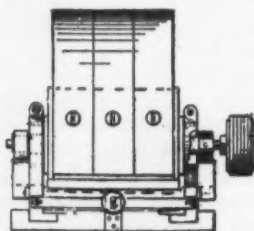
A support for identification signs in automobile lamps has been patented by Horace E. Finn, Trenton, N. J. No. 833,377. It consists of an inwardly yield-



ing loop of wire having a resilient coil intermediate between the two extremities. A rectangular frame bearing the numbers has two of its opposite edges bent back upon themselves to fasten to said loop. The device fits inside the outer lens frame, as shown above.

Magneto-Electric Generator

No. 832,354, a magneto-electric generator patented by Joseph A. Williams, Cleveland, O., consists of the combination of a generator with a supplemental



frame, in which the frame of the generator is mounted on an axis coincident with the axis of the armature shaft, with means for preventing the turning of the generator in the supplemental frame.

Lap Robe

David Hall, Norwood, O., has devised a new lap robe for automobiles. No. 832,-

378. It is a robe having a slit permitting it to pass around the steering post and a flap for covering said slit portion after the robe has been placed in position around the steering post. It has a means for adjustably fastening to robe to prevent slipping down.

Vehicle Wheel

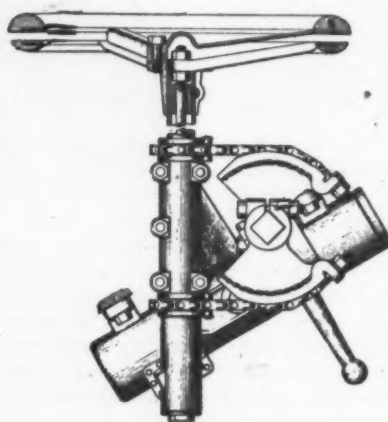
Mr. H. Bell, Stamford, Conn., is the inventor of a resilient vehicle wheel consisting of a felly and rim, provided with



opposed ball-retaining recesses and a series of resilient balls in same, which serve to form the sole connection between the rim and felly. The inner circumference of the rim lies sufficiently close to the circumference of the felly to prevent the removal of the balls, except when the rim is taken apart. No. 832,950.

Steering Check

Herman Lemp, of Lynn, Mass., has assigned a patent on a steering check to the General Electric Company, of New York.



No. 833,232. It is a combination of the steering mechanism with a cylinder having an integral bracket, carrying a bearing for a steering post, and a hydraulic checking device connected with the steering post.

Shock Absorber

Willard I. Twombly's shock absorber is a device attached to the springs, consisting of a bladder filled with fluid, enclosed between a cover and frame, making

a fluid chamber and forming a flexible field upon which a body portion of a vehicle may have a universal rocking movement. No. 832,103.

New Thermostat

Mr. L. C. Bryce, Petaluma, Cal., is responsible for an improved thermostat consisting of pairs of metallic disks, each having peripheral flanges, one fitting within the other rigidly, the disks being corrugated in concentric lines. An exteriorly threaded nipple is carried by one of the disks and has an internally threaded orifice which communicates with the chamber enclosed by the disks. This nipple has an outer end provided with a permanently attached skin or coating of soft, compressible metal, a screw plug fitting the orifice and seating on the metallic coating and being freely removable. A support for the thermostat has an internally threaded socket into which the nipple screws. A sleeve between each pair of disks, having two diameters, the larger of which fits a corresponding perforation in one of the disks, and the smaller fitting a like perforation, has a



flange surrounding the base of its larger diameter and is adapted to abut against the inner side of its disk. The portion of the smaller diameter projects beyond the outside of the disk and is adapted to be permanently fitted to a perforation in the additional disk. No. 832,293.

Wheel Tire

A wheel tire has been patented by Mr. L. H. Broome, Jersey City. It consists of a tubular element of stiff, resilient material, disposed longitudinally and perforated contiguous to the tire tread and contributing to form an externally located air space communicating with the interior of the tubular ring. There is also a shoe having base portions with opposite converging faces, a wedge block between the faces, and provision for securing the tubular element formed by the block and base portions of the shoe.

Granite is a fire-formed rock which has been subjected to intense heat and enormous pressure deep down beneath the surface of the earth.

Every rope used in the British naval service, from heaving-line to hawser, and wherever it may be used, on shipboard or in dockyard, has woven into one of its strands, for purposes of identification, a red thread. The presumption is that any rope with the red thread found outside of such uses is in improper hands.

Questions Asked and Answered

This department is conducted for the benefit of our readers and consists mostly of questions sent for answer to our Information Bureau. When confidential information is asked for concerning any car or accessory we answer by mail.

Wear of One Tire

J. R. A.—The persistent wear of one tire in a pair of wheels showing more than the other shows that the alignment of the wheel is not straight and is to some extent being dragged sidewise on the track by the other true running wheels. It is difficult to ascertain the exact alignment of wheels when the tires are attached to the rims of the wheels. With the tires removed the relation of the wheels to each other, as well as to the frame of the auto car can be readily determined by attaching long straight edges to the sides of the wheels touching the rims at two points and measuring the distance at the extreme ends of the straight edges. Lines carefully stretch may serve the purpose. It must be remembered that the front wheels of motor cars are generally set with a limited amount of "foregather" as well as "in gather," which means that they point slightly towards each other horizontally as well as vertically. The rear or driving wheels are horizontally parallel to each other and at right angles to the frame. The rims are slightly nearer to each other at the top. This has the effect of placing the weight nearer the inner edges of the axle bearing rather than on the extreme points of the axle.

Spring Wheels

R. M. B.—There was considerable boasting a short time ago about made up automobile wheels that had the necessary resilience provided by means of springs between the hub and the periphery. Has anything of that kind been made a practical success? A.—No. The most promising device of this kind was the Pradeau spring wheel, which consists of two rims, the outer one carrying a solid rubber tire. It was a complex sort of an arrangement, the spokes having cylinders provided with springs at the inner rim. Inserted in the cylinders were forked plungers attached by links to bearing pieces attached to the under surface of the outer rim. Wheels of this kind ran 4,000 miles in a reliability trial in England, but there were too many parts for everyday service. Various other wheels of a similar character are under trial, among them one patented by S. S. Childs, Bernardsville, N. J.

Grinding Valves

M. E. R. Valve grinding is an easy process if a handy man has the proper tools. A boring brace with a screw driver

attachment fitting into the notch usually made in the center of valve castings, and a supply of medium and fine emery and oil are necessary. Grind the valve, taking care not to bear too heavily on it, and occasionally lift it out of its place, renewing a light sprinkling of emery and a thin layer of oil. Finish with fine emery and dry off thoroughly with cotton waste. A few turns of the valve when thoroughly dry should show a bright polish on the entire bearing surfaces. In readjusting the valves care should be taken that they are not bound rigidly in position by the valve stems, but should have a slight clearance allowing the valve readily to find its own place.

Quality of Alcohol

L. R.—In the numerous articles I have read concerning alcohol as fuel for automobiles, I have seen nothing about the proportion of water the spirit will stand

loss of a considerable amount of motor power. Sometimes it is traceable to insulation upon the high tension, or secondary wires leading to the "spark plug" having become rotten as the result of oil splashing upon it. Unprotected wires become short-circuited and either fail to produce a "spark" or else produce it irregularly. The wires are safer in an iron tube or pipe. Oil has a most pernicious effect on insulated wires as it has the effect of rotting the covering very rapidly.

Wear of Piston Rings

W. L. C., New York.—The piston rings wear out rapidly and should be examined occasionally. Cylinders ought to run for several years without the need of re-boring. Horizontal cylinders wear more readily out of round than cylinders placed vertically, but a leaking piston is more likely to be caused by worn rings than by cylinders that are slightly worn. Worn rings interfere very much with the compression.



SCENE ALONG THE LAKE OF BAYS RAILROAD IN THE MUSKOKA REGION.

and still make an explosive mixture. Is there such a thing as pure alcohol? A.—Proof spirits contains 57.27 per cent. of pure alcohol. It has not been ascertained with accuracy how much dilution of water alcohol will stand and form an explosive mixture. Very little reduction below proof will make explosions difficult. Absolute alcohol contains no water but it has to be distilled in the presence of carbonate of potash. Absolute alcohol does not make such an effective explosive as a mixture having ten per cent of water.

Defective Ignition

L. L.—It would be difficult to detect the cause of ignition troubles unless by actual examination. One of the most common and most annoying difficulties encountered by the beginner in automobile running is the failure of the "sparker" to perform its function and the consequent

Quality of Cooling Water

C. K., Kansas City.—Rain water is the best that can be used in cooling. Mineral deposits naturally harden where evaporation is going on, and if the engine happens to run hot the water will sometimes be at the boiling point. The same trouble is experienced in the radiator and other parts of the automobile, as is the case with locomotive boilers, although in a less degree.

Testing the Spark

R. M., Plainfield, N. J.—It is well to try the spark occasionally, and to remember that the gap that a spark will jump outside of the cylinder is no indication of what it will do inside the cylinder when the air is compressed. Sometimes the spark is so weak that it will not ignite the mixture. In order to be thoroughly reliable the spark must be of a very violent kind.

S. S., Manchester, N. H.—When a tire bursts the best thing to do is to bring the automobile to a stop by cutting off the gasoline. The sudden application of the brakes is sometimes accompanied with bad results. It may be noted that the bursting of a front tire is not so serious a matter as the bursting of a rear one.

H. K., Brooklyn, N. Y.—The best method of testing the compression in the cylinders is by removing all the spark plugs except one. Then slowly turning the cranking handle. This will indicate the compression in the cylinder where the spark plug has been allowed to remain. The plug can then be removed and another cylinder tested, and so on until all are tried. The unsatisfactory cylinders can readily be distinguished by the ease of their compression points.

An Humble Hero

Editor AUTOMOBILE MAGAZINE:

In view of the fact that various magistrates, constables and others consider chauffeurs nuisances in general, having no regard for the feelings of others, I enclose the following clipping from "The Index," which shows the other side of it.

Those who blame automobilists for reckless driving and lack of consideration for the lives and safety of pedestrians, would do well to read of the heroism, which cost the life of Louis Lieber, who in dashing in a runaway auto down the Snake road, which winds over a dizzy ledge of the Ramapo hills, with a sheer drop of 100 feet to the valley below. Meeting in the narrow road another auto in which Miss Cutting, the daughter of R. Fulton Cutting, a friend, was riding, sacrificed his own life by jamming on the emergency brakes and throwing his own car over against the mountain. The machine was broken to fragments by the violence of the turn, and from the mass of iron and wreckage Mr. Lieber was taken unconscious. When he regained consciousness he asked in a whisper, "Are the ladies safe?" and relapsed into unconsciousness from which he did not rally. All honor to such a hero!

This is but one example of the many humane acts of motorists that do not always find space in the newspapers.

Very sincerely yours,

C. D.

Yonkers, N. Y.

Steel Engraving

One of the most beautiful productions of art is a steel engraving, a form of picture that is steadily going out of fashion, except for bank notes and stock certificates, on which expense is of no consequence. People with taste for real art work, while visiting museums, often consider copper engravings to be made by steel plates, the difference between the

two being difficult to detect, except by experts.

Engraving on copper plates was carried on by the Orientals before the development of Western art, and many beautiful specimens are preserved in museums. Engraving on steel is quite a modern process, and was first done in the beginning of last century by an American, Jacob Perkins, of Newburyport, Mass. The process was too expensive to become popular.

The Saw That Has Aided All People

Pliny says that the first saw was invented by Daedalus, but, according to Apollodorus, it was the invention of Talus, who used the jawbone of a crocodile to cut through a piece of wood, and then made an iron instrument in imitation of it. The saw is represented on the monuments of Egypt from 2500 to 3000 years B. C.

As early as A. D. 1322, saw mills driven by water power were in operation at Augsburg, and it is believed before this they were in operation in Paris, driven by the current of the Seine. The first saw mill erected in the Norway pineries was in 1530. Saw mills were numerous in Italy in the sixteenth century. They were not introduced into England until 1653, when a native of Holland built one, but was compelled to abandon it by the opposition of the populace, carpenters and other artisans, who saw no good in such a new-fangled contrivance.

Mr. Vanderbilt on the Long Island Speedway

Nearly all sport loving automobilists are interested in the movement to construct speedways where automobile racing can be conducted lawfully and without danger of killing or wounding people who cannot be kept off public highways. The first speedway likely to be opened will be on Long Island. Mr. W. K. Vanderbilt, Jr., is president of the company making this highway. Speaking at the annual dinner of the Automobile Club of America on this subject Mr. Vanderbilt said:

It gives me great pleasure in behalf of the Long Island Motor Parkway to respond to your toast. It has been the dream of every motorist to own a perfect car and to have a road without speed limit, and thanks to the promptness with which a number of you have responded to our urgent appeal the last named is about to be realized.

There is to be constructed a private right of way through the centre of Long Island, extending in an easterly direction from the city limits, a highway to be built on a 100 foot right of way and having

an approximate width of fifty feet. Grade crossing for both railways and highways are to be eliminated by the construction of bridges or tunnels and the entire distance is to be fenced. Access and egress to this boulevard will be obtained at toll gates erected at intervals of about five miles. The surface of the road will be either oiled or tarred and maintained in first class order so that the motorist can enjoy a ride without dust, without bumps and, last but not least, have no interference from the authorities.

A charge will be made for the use of the parkway, from which it is estimated we will be able to maintain, operate and pay the fixed charges.

The boulevard will give the manufacturer the much needed place to try his cars and will afford others the opportunity of driving with comfort to and from their country houses.

Many leading hotel men have proposed erecting hotels in the neighborhood of the parkway and these will assure the motorist an opportunity of obtaining refreshment en route.

To give you an idea of the enthusiasm evinced, it is but necessary to state that twenty-five miles of the right of way have already been donated and a large sum for the construction subscribed.

Now, if we can prove to the public that a company incorporated, constructed and operated on a basis similar to ours is a paying investment we will not only have the Long Island Motor Parkway but roads of a similar character extending to Philadelphia, Albany, Boston and many other smaller towns.

Therefore, I feel that we should have the financial and moral support of all those interested in automobiling.

Men Wanted

It is particularly gratifying to observe that the automobile factories are nearly all working up to the full limit of their capacities. The demand for skilled workmen in the various trades employed in the manufacture of the automobile is ahead of the supply, and this condition of affairs is having an effect on many other industries. It is particularly noticeable that the better class of machinists are leaving the railroad repair shops and engaging in the lighter and cleaner work of automobile construction. This impetus was much needed, as in many cases the wages of railroad machinists have not been raised since the days of the Civil War. There is a general upward movement now all along the line and it just needed something like the automobile building boom to put life into one of the most skilled of the mechanical trades. We often hear it asserted that the laws of supply and demand regulate pay independent of unions, but for want of combination machinists were the worst paid artisans in America.



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Growth of the Automobile.

The interest taken by the general public in the Automobile Show held in the Central Palace, New York, in December, and the elaborate preparations already completed for the exhibition in Madison Square Garden in January, considering the few years in which the machine has come into public notice, is one of the most remarkable occurrences in modern times. The introduction of the steam engine as perfected by James Watt was of, comparatively, little interest compared to the motor car of our day. The adaptation of the steam engine to the locomotive by George Stephenson and others was a step that led to gigantic results, but it cannot be said that the locomotive rose into immediate popularity. Its use involved the segregation of capital hampered by the vexatious delays of legislative bodies more or less corrupt. Antiquated means of transportation fought fiercely against the new methods and the inevitable triumph of the steam engine as applied to locomotion was scarcely witnessed by the same generation that saw its introduction.

The automobile has had its enemies. Strangely enough the worst of these think themselves its friends. The passion for mere speed of transit has raised a crop of legislative enactments that are as absurd as they are useless. The laws already enacted in regard to the use of

vehicles were sufficient to cover almost everything necessary in the use of automobiles, but the strange conglomeration of shallow brained politicians that constitute the majority of legislative bodies run to extremes and take a delight in surpassing public expectation in salutary law making. In spite of these drawbacks the automobile passes on its way from an experimental fad to a great and growing public necessity, and the tale that can be told of its marvellous growth is a strange one. Seven years ago there were not more than 500 automobiles in America. Now there are over 60,000. Factories have sprung up in pathless wildernesses and villages and towns are rising around the factories and the automobile industry is taking a place in the industrial life of the people that bids fair to surpass steam engine construction.

The dwellers in New York City have an object lesson in the transformation of a large portion of the best known avenue in America from a neglected, straggling collection of sheds and shanties to palaces of such colossal magnitude that the boldest stands aghast at the sudden transfiguration. At first glance it looks as if the daring speculators courted disaster, but the rapidity of events prove the soundness of their judgments. They are building better than they know.

These visible signs of popular approval are apparent to the most casual observer, but the invisible spirit of progress has its higher and better development in the minds of thousands of our best people, who by the sensible use of the automobile are brought into closer contact with nature. Out in the free air of heaven, amid the glow and glory of summer fields or in the keen, bracing breath of winter winds, there is a physical invigoration that comes without toil. Life is made larger and more beautiful. Social joy is less confined. The beneficent blessing of the perfected machine is reaching into the homes and gladdening and sweetening the lives of all who can take advantage of the marvellous invention. As time passes its mercurial influence will reach the humblest as well as the highest and in ways undreamed of the self-propelled vehicle will glide from place to place a benefactor to the human race.

Car Starters.

We know of nothing in the line of invention that tends to be repeated so often as contrivances intended to store the energy dissipated by brakes when cars are running down hill. Railroad cars were a very short time in use when the first car starter appeared, and it has been coming in slightly changed form regularly ever since. Street horse car service gave this species of invention a boom for a time, and several of the inventions were applied to cars, but that use was short

lived. Now we see inventions of this kind going through the patent office, for automobiles, their reported purpose being to help the cars in ascending grades.

The usual line followed by the inventors of car starters or car helpers is to use up the energy expended in stopping or holding back a car in the winding of a coiled spring, the energy put into the spring to be converted into useful work by helping the car to start or to help in turning the wheels on an ascending grade. Of late inventors have been trying to use a storage battery instead of a spring.

The possibility of utilizing the power wasted in stopping a car is an alluring problem, but superficial consideration makes it much more simple than it really is. Scientific people have long been quite familiar with the exact capacity of steel springs as a medium for storing and it is ridiculously small. Professor Osborne Reynolds investigated this problem very thoroughly, and he found that to store the energy necessary to maintain one horse power for one hour would require no less than fifty tons of steel. Yet we have heard an inventor claim that a contrivance he had invented weighing about four hundred pounds was capable of giving out ten horse power for ten minutes.

The storage battery arrangement is much more complex than the coiled spring but we doubt of its being any more efficient. When the car starter man comes around with his marvellous tale we advise automobilists to keep shy of any proposition he may make.

Creation of New Substances.

When alcohol was made almost entirely for the purpose of being converted into drinking concoctions, there was no great inducement to experiment with cheap material or with cheap methods of manufacture, for the people who consumed the stimulating beverage have been considered well able to pay for the luxury and the principal item of cost to the consumer is the tax imposed by the government. Since there are prospects that untaxed alcohol will soon be at the service of any purchaser, many people perceive possibilities of using alcohol for industrial and power purposes never formerly dreamt of. This has stimulated endeavor to find materials that would constitute cheap producers of alcohol and by a process of induction a variety of industries are likely to receive benefit.

It will be strange if the manufacture of artificial silk should be greatly stimulated by the efforts to cheapen alcohol, yet it looks as if that were likely to come true. The great demand for rubber due to the immense use for it in the manufacture of automobile tires is also helping the artificial silk making business. Scientists in different countries, especially in Germany, have been experimenting

with the production of alcohol from vegetable fiber, which so far has been too expensive for popular use, but one stage of the process has produced the liquid which is easily converted into artificial silk. The production of artificial silk is much more extensive than is generally supposed and thousands of fine ladies are wearing robes which they suppose was originally made by the silk worm when in reality they sprung from the earth in the form of birch trees.

A concern in Albany, N. Y., is making artificial rubber, which is nearly as good as the natural gum, and it is expected that soon the elements built up by synthesis will be as good as the natural production. The making by synthesis of artificial silk, artificial rubber and other substances is occupying the attention of some of the ablest chemists in the world and it is difficult to say where their triumphs will end.

Reports presented at the annual convention of the Society of German Chemical Industries held recently at Nuremberg, point to the prospective substitution of the work of the silk worm by the spinning of wood sell material in the near future, to the laboratory work now being assiduously conducted for the purpose of supplying an artificial india rubber, the efforts toward utilization of atmospheric nitrogen to replace the saltpetre of nature needed for industries and agriculture. The recent technical triumphs in the successful replacing of natural indigo and madder (krapp) by artificial products are related as examples of continued inventive progress. The synthetic efforts now made in albumen are referred to as exceedingly important to the coming generation. The reports close with the declaration that chemical industry deserves to be denoted as the "industry of unlimited possibilities."

Natural and Artificial Racers

We have not yet enjoyed the pleasure of riding over a speedway specially laid out, constructed and protected so that automobile enthusiasts may race to their heart's content. That such a speedway will soon be opened on Long Island is a certainty, and now we find that agitation is active in many parts of the country for the construction of local speedways. The half mile track that was sufficient to show off the paces of horses is not equal to accommodate racing machines running at velocities seldom attained by express railroad trains.

The public has been inoculated with the high speed infection, and it looks as if nothing will satisfy them except speedways where the only limit of speed will be the inability of the cars to go faster. So long as sporting sentiment moves in this direction, special facilities for fast automobile racing are certain to be pro-

vided. We doubt, however, if machine racing is going to take a permanent hold of the sporting fraternity.

There is alluring exhibition about moving through space at terrific velocity that will always attract some people, but a racing machine is different from a fast horse. The former owes its speed to arrangements of pressure and levers that any expert engineer may duplicate; the fast horse is a natural production that cannot be repeated by intelligent devising. The best kind of racing horse lags behind a fast automobile, but outrunning all of its kind will always excite admiration that an art made machine cannot touch.

Crank That Takes Unfair Advantage

A press dispatch to a New York paper, which bore the caption, "Extraordinary Occurrence," from a town in New Jersey, told that a chauffeur, in trying to start an automobile, received a blow from the crank which broke his jaw and fractured his skull. The extent of the injuries received was extraordinary, but accidents from back-firing are very common. They result mostly from carelessness, through the spark lever being too far advanced. When an engine stops accidentally, it is a very common thing for the person in charge to step down and attempt to start the engine without thinking to push back the starting lever; then he is fortunate if he escapes a back stroke from the crank.

There are other causes, however, which lead to a backward impulse of the crank. The writer received a very painful bruise from a back stroke of a crank caused by the commutator being out of order, with the effect that it advanced the spark. Another cause of back-firing is the presence of fire in the tube leading from the carbureter. That is very unusual, however, most of the accidents being caused by the sparking connection being too far advanced when starting is attempted. Some device to prevent the crank from flying backward would be an important improvement.

Painful accidents caused by back-firing are not confined to amateur automobilists. At one of the Florida automobile races a noted French chauffeur was knocked insensible from a back stroke of the crank, and he had the appearance from a prize fighter fresh from the ring for weeks afterward. A lady in Pittsburg, who made considerable pretensions as a chauffeuse, met with a most embarrassing accident from the crank flying back when she was attempting to start the engine. The crank handle caught her skirts in its backward whirl, and tore most of them off her person below the waist. Catching watch chains and making disaster of their connections is a common form of back-cranking accident. Most of things, projectiles even, start from a condition of

rest with moderate accelerating velocities, but an automobile crank turning the wrong way has a terrific initial velocity. The victim is quietly but vigorously pushing round the crank, and in an instant it feels as if we were trying to stop a cannon ball. The surprise of the event is one of its most aggravating incidents. There is a common saying, "He did not know what struck him." That originated with the person first hit by a back-firing crank. Painful experience has been such that we begin cranking with trepidation.

Anomalies of Our Postal Service

Every year about the time Congress meets there is agitation and howling among the nation's legislators concerning the expense of operating the postal service. There is always a deficit, and it is blamed by certain politicians upon second class matter (newspapers and similar publications) being carried at one cent a pound rate. The old fight is now raging.

Meanwhile certain Chicago capitalists are soliciting the Government for the privilege of running the postal service as a private enterprise under Government control guaranteeing to carry letter postage for one cent and second class matter for half cent a pound. They also offer to guarantee as profit to the United States 7 per cent. of the money invested.

It is asserted that under present arrangements the Postal Service is carried on for the benefit of railroads and express companies. Madden, the present Second Postmaster General, is an enthusiastic advocate of higher rates of postage. He is an old railroad man whose sympathies remain with his old employers and has always been against the public.

That cheaper postage is practical for the United States under proper management seems to be proven by the experience of Canada, which is carrying second class matter at less than half cent a pound, carries on a parcel post and makes profit on the business. But then Canada does not have a Senate loaded with persons laboring in season and out of season to promote the interests of express companies.

An expensive feature of the United States Postal Service is that thousands of employes perform half work for full pay. If the business were put in private hands the drones would be chased from that hive of easy jobs.

Why It Exasperates

"My husband has such an exasperating habit of talking in his sleep." "Disturbs your rest, doesn't it?" "Oh, I don't mind that. But he mumbles so I can't understand a word he says."—Chicago Tribune.

France to Punish Scorchers

In France the law requires a pedestrian to keep from being run down by vehicles and when a person is struck on the roads or streets he or she is much more likely to be arrested than the driver of the vehicle. This has made France an ideal country for speedy and reckless chauffeurs, but the people even there are getting tired of the tyranny of irresponsible automobile drivers.

Automobilists over there are beginning to find out that it makes a difference whose ox is gored. A daughter of a most influential personage, Senator de Freycinet, was struck by an automobile some time ago and crippled for life. Her father is now on the war path and is about to introduce an extremely stringent auto-speed measure, which is reported to have the support of the Prime Minister. The speed limit is fixed at 18 kilometres (12 miles) in the country and 11 kilometres (7 miles) per hour in towns. The limits are absurdly low, but they reflect the feelings of some influential people.

There are drastic penalties proposed for people who cause accidents. A driver causing an accident will be fined \$200 for the first offence, sentenced to a year's imprisonment for the second and three years for the third, with loss of his right to run a car. A special corps of motor police is provided for. The bill will possibly be attenuated in Parliament, but a severe measure will probably pass, as the country Deputies and Senators strongly favor it owing to their constituents' complaints.

1204 Cars Imported

A compilation showing the standing of the foreign cars in this country for the past year has been made by the Association of Licensed Automobile Manufacturers. The total number of cars brought into the country from Jan. 1 to Nov. 1, 1906, was 1,204, with an aggregate value of \$4,400,000. The total for the corresponding period of 1905 shows the total number of cars to be 912, costing \$3,150,000, the increase in cars being 292, and an increase in value of \$1,250,000. Forty-four different makes were represented in the 1,204 cars imported this year. Of these 44, 20 were manufacturers whose cars had come to this country for the first time. They aggregated 60 cars at an average of three cars to each new maker. Of the 44 importers, eight were licensees of the Selden patent, an importation of 496, or an average of 62 cars to an importer, which left 36 other importers, who sold 400 cars, or an average of 11 cars to an importer. Direct importation by individuals, importation of second-hand cars and previously imported cars numbered 245, 60 per cent. of which were brought into the country under the Selden patent license. Sixteen electric and 47 trucks and cabs in bond make up their total of

1,204 cars for the year. During the month of October, 187 cars were imported, with a total value of \$685,000. The same period in 1905 shows the total number of cars to be 139, with a value of \$417,000.

Railway Automobiles

Railway automobiles are beginning to be considerably used in Europe—(1) as early and late postal trains, (2) on branch lines and others where passengers are few, (3) on trunk lines where it is often difficult to secure convenient secondary trains, (4) in industrial centres and city suburbs. Furthermore, the automobile railway train can be attached for a certain distance to an express and detached at the station where the road branches.

There is an economy in the personnel of the train, in the expense of traction, in material, capital and maintenance, and there is additional traffic because of the increased number of stations made possible by the facility of starting and stopping. Up to the present time the carriages constructed are steam and electric.

The Belgian State Railways has carriages 46 feet long, weighing 50 tons, and having a seating capacity of 53 passengers. The ordinary speed of these trains is 19 miles an hour, although they can be pushed to 30. Two men handle a train.

The Russian State Railway employs ten steam coaches which are really two stories. Three men are used, and the speed averages about 14 miles an hour. They burn naphtha. The Northern Railway of France has postal steam autos, with room for 12 people in the back of each coach. The Italian Mediterranean Railway has autos on a line from Milan to Monza, the carriages each having a seating capacity of 90 passengers, and the trains traveling at 27 miles an hour.

Novel Features at the Garden Show

The committee of arrangements for the seventh automobile show to be held on January 12th-19th at Madison Square Garden, New York, are sparing no pains to make the occasion the most notable in the history of automobiling. The great interest taken in the Vanderbilt Cup Race on Long Island, when nearly half a million people witnessed the contest, is having its reflex in the work of the committee. The principal cars that took part in the event will be grouped together at the Garden, and the people can see at close range and examine the mechanism of the cars that created so much interest last October. The exhibits will comprise two groups, the foreign group, including the winning Darracq, Fiat, De Dietrich, Hotchkiss and Clement-Bayard, while the American exhibit will have the Loco-

mobile driven by Tracy, the Thomas, Haynes, Pope-Toledo and Oldsmobile cars.

Bogus Constable

The latest development of the strange laws that have found their way into the statute books of the various States is the appearance of the bogus constable. The police authorities in Connecticut are endeavoring to capture a man who has been holding up motors and threatening arrest if he is not paid promptly.

A recent victim is Mrs. J. B. Herreshoff, wife of the yacht designer. While riding in her touring car outside of Milford, a man sprang into the roadway and demanded that the chauffeur stop the machine which, he declared, had been exceeding the speed limit. After some heated argument the supposed officer stated if Mrs. Herreshoff would give him \$25 he would make his report so that she would not have to appear at the police station. This was agreed to, and the alleged officer disappeared. It was afterwards learned that several others had been held up by the same highwayman on the same day. The danger is that this new Dick Turpin will likely have imitators.

To End Cranking

One of the exhibitors at the Grand Central Palace Show made strong claims for the utility of one invention he controlled of means apart from human muscle for starting the engine of an automobile. The plan seemed remarkably simple, and consisted of injecting gas into a cylinder and then applying the spark. The gas, of course, would have to be mixed with the proper proportion of air, and the piston would need to be on the explosion stroke; but these are details that could easily be regulated. The person who perfects an appliance that obviates the toil and danger of cranking is a benefactor of his or her kind, and deserves the gratitude of a suffering automobile humanity.

A Leather Clothed Hero

It seems to be an element in human nature to blame the multitude for the sins of the few. Legislators act on the belief that every person guiding a horseless carriage is ever looking for an opportunity to rush along at the highest velocity the machine can attain and that care of other people's safety receives no consideration.

Yet there are heroes wearing the leather garb of the chauffeur. One man named Louis Lieber risked to save and took the part of Christ—died for others: "This man had just the flash of a second to make his choice whether he would take a chance for his life by sticking to the road in his motor car as he whirled down at a

mile a minute or whether he would turn into the rocky embankment at the side and drive his machine against its walls—certain death—in order to give two women in the approaching motor car a chance for their lives. He did not hesitate an instant. Without even waiting to put on the brake he turned his car and went crashing into the rocks. He recovered consciousness long enough before he died to ask if the ladies had escaped.

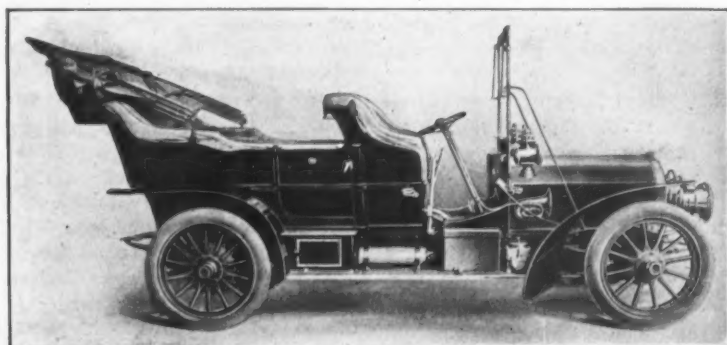
The Matheson 1907 Model

Valuable additions have been made to the many admirable features of this car which will be fully appreciated by auto-

mobiles when the touring season opens, and it is no idle boast of the makers that their touring car was designed to compete principally with the very finest and highest priced of foreign make. The Matheson car took its place in the front rank of automobiles at once, and while the general design of the four-cylindere vertical engine has remained the same, improvements of considerable importance have been made in the details of the mechanism.

The involved wiring so puzzling to beginners with the automobile has been entirely abolished. All that remains is a single insulated wire from the low-tension magneto to a brass bar that conveys the current to the sparkers. Mixing or short circuiting are physical impossibilities.

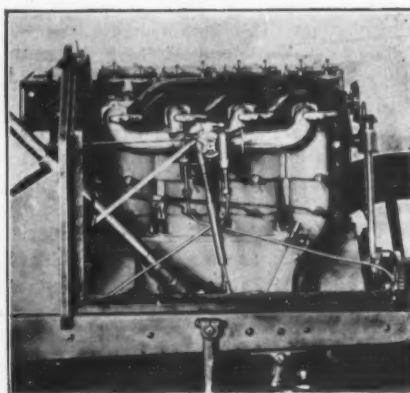
There are four powerful brakes, two of which are water cooled. A hill-pawl automatically prevents the car from backing down grades.



MATHESON 1907 MODEL.

This year one of the chief new features is a carbureter in which three jets are employed, each being located at the apex of a conical air passage which opens toward the front of the engine. Air is supplied through a hood, so that the indrawn air is warmed before mixing with the gasoline. A series of small plungers working with the throttle uncover the gasoline jets, so that when the engine is running slowly a small jet is in operation. When the engine is running faster the larger openings are cut open, so that at high speeds the three jets are in full operation with the air passages also fully opened. In connection with this is another novel feature insuring a positive gasoline supply to the carbureter. A pump driven from an eccentric on one of the gear shafts draws gasoline from a tank hung below the frame. A glass chamber directly behind the carbureter receives the gasoline, and an overflow chamber provides an absolutely constant level of gasoline, an overflow pipe leading back to the tank.

A feature of the Matheson car has been



MATHESON CARBURETER.

The bodies of the car are made of aluminum, luxuriously upholstered in genuine hand-buffed leather, the fine production of J. M. Quimby & Co. and Moore & Munger Co. The high-class workmanship, together with the perfect materials of which the entire car is constructed, insures the highest factor of safety, and practically no repair expense if properly driven.

Ignorance About Explosive Nature of Gasoline

The following item cut from the New York *Globe* indicates that information concerning the action of gasoline in a fire is badly needed:

While a wagon of the Vacuum Cleaning Company was standing in front of the Wellesley apartment house, on the north-

east corner of West End avenue and 81st street, to-day, the engine became overheated and flames burst from the woodwork.

Arthur Brody, the engineer, who was at work on top of the wagon, jumped down and unhitched the horse, while his assistant turned in a fire alarm.

Brody, remembering there was a gallon tank of gasoline in the wagon, and that an explosion was imminent, got under the body of the wagon and hammered away at the lead pipe leading to the gasoline tank until he broke it and the gasoline poured into the street.

Ignorance assumes that a jar of gasoline acts like a keg of powder when a match is applied, which is not true. Gasoline is explosive only when it is mixed with a certain proportion of air to supply the necessary oxygen. Brody was endangering his life by hammering to break the pipe since he might have got his clothes saturated with the gasoline. Had that happened and a spark from the burning wagon ignited his clothing it would have been a case of a man roasted. Had he let the gasoline alone the worst that could have happened would have been some fuel added to the fire.

Art Production by Machinery

A visitor to a museum where antiquities are to be seen hears a great deal of senseless praise expressed about incomparable finish and exquisite design of articles that are easily duplicated and even surpassed by modern artists and workmen. Articles of ancient art are nearly always the finest of that time, which is the reason they have been preserved. It is silly to say that modern art productions are inferior to those made long ago.

Art studies have a tendency to make people snobbish and to turn up their noses at anything less admirable than old masterpieces. This is evidently the origin of an agitation that depreciates the use of machinery for producing art works. The people who reflect this sentiment represent the machine as a monster which is driving out true art and is showering sham art horrors upon the face of the earth.

Professor Hubert Von Heerkomer, a very high authority, lecturing on this subject in London, said it is untrue that the limitless repetition of one article which the machine made possible must be contrary to art. Rarity was not an art quality. The beauty of a thing did not lie in its rarity but in its design, workmanship and material.

Hitherto the cheap things produced by machinery chiefly lacked design, but if a good design were produced and then reproduced by machinery, it would be better than for the people to be content with cheap inferior handwork. Machinery by the multiplication of whatever was best

in statuary and carving could bring the highest art closer to the masses of the people, at once pleasing and elevating them. A woman's hatpin, said the lecturer, was not the less a work of art because it was turned out by thousands. A copper vase which took a man three days to hammer out was not more artistic than one which was turned out by machinery in half a day.

Ruskin, the professor said, was the incarnation of anti-mechanism. He had become a prototype of a number of people who did not think for themselves, and had shown that it was possible for a man simultaneously to inspire and to mislead. Moreover, it was needless to cling to the antique Gothic window with little panes which only reflected the deficiencies of past ages. They would not have had Gothic windows then if they had known how to make ours.

Tunnels Under the Hudson River

Last month both "tubes" of the Pennsylvania Railroad tunnel under the Hudson river between New York and Weehawken were officially opened. That simply means that there is now subaqueous communication from each side of the river, but trains cannot be run through for many months yet, as a lining of cement 18 ins. or 2 ft. deep has to be put on and piles have to be driven down under the tunnel down to solid rock. The piling will sustain the heavily lined tubes and carry the weight of the trains which pass through. After this work has been done the interior will be finished and the permanent tracks laid.

The New York end of the tunnel comes up at Thirty-third street and Eleventh avenue, and the New Jersey end will join the extension which is being driven through that low-lying mass of rock known as Bergen Hill. Each tube is about 6,600 ft. long and each will contain one track, on which electric locomotives will haul ordinary railroad trains.

Work in each tube was carried on simultaneously from both ends. Tunnel shields, similar in principle to that referred to in our June issue, page 244, were driven in from both ends. The meeting of the workers in the north tube occurred four weeks earlier than that in the south tube. The shields met in the north tube about 300 ft. beyond the half way point nearer New Jersey, while the shields in the south tube came together about 200 ft. past the center, nearer to Manhattan.

As a triumph of engineering skill, the driving of the Pennsylvania tubes has been unique. Some days before the opening of the tunnels very careful measurements were taken to ascertain the alignment. When the shields actually came together in the north tube the deviation in direction was found to be only one-

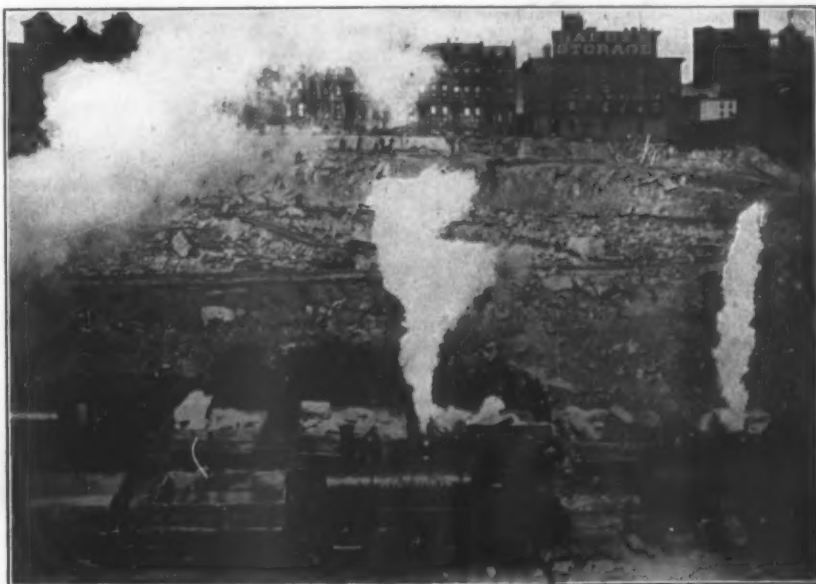
sixteenth of an inch, while in the case of the south tube the shields met exactly, with no observable deviation in the lines joining their centers.

The work was done by the O'Rourke Engineering Construction Company, of which Mr. John F. O'Rourke is president. Work was begun in June, 1905, on the north tube, and a month later the south tube was begun. When completed the tubes will have an interior diameter of about 18 ft.; as it is now, the tubes without the concrete lining are about 22 ft. in diameter, and this is the size of the excavation which has to be made by the contractors. The tunnels will in fact be like tubular bridges of circular form carried on piles and buried in the soft mud and sand below the river bed. In order to carry out the work in such material an air pressure of about 35 lbs. to the

where without danger of being broken. It can be readily adjusted on a light wooden frame and so constructed that a point instead of a flat surface strikes the air. A limited amount of air comes through the screen, but in the country, where swarms of gnats, mosquitoes or other insects are encountered, the wire wind breaker is a great protection. A number of motor car owners have become interested in the invention, and doubtless it will be much used next season.

Air Traversing Automobiles

The Aero Club members and some other people believe that the sport of flying through the air in flying automobiles is one of the coming sports, and we must admit that progress is making in that line. A dirigible balloon has lately been giving



EXCAVATIONS IN NEW YORK CITY FOR PENNSYLVANIA TUNNEL.

square inch had to be maintained, that is, the men who worked in the tubes were under a pressure of more than two atmospheres, and according to the statement of Mr. C. M. Jacobs, chief engineer of the Pennsylvania, no lives had been lost in the work of driving the tunnels. As an engineering feat the whole undertaking has been carried out with masterly skill, and all concerned are to be congratulated on the great success which has attended their labors.

Wind Breaker

Dr. T. H. Whiting, of Rockford, Ill., has invented a wire front for automobiles and is beginning the manufacture of the article next Spring. At present the only wind breakers are those made of glass, and they are readily broken, cost considerable and reflect the sunlight sometimes very disagreeably. The wire front made by Dr. Whiting can be folded up and put away under the seats and else-

much entertainment to the people of Paris and the parts round about. This balloon, called the Patrie, moved against wind blowing about nine miles an hour, and managed to land at an appointed spot. That is much better than the habit these things have had of landing on a tree or in a lake, and must be very encouraging to the aspirants for air navigation. More good luck to the Patrie.

Nails Ancient and Modern

The first nails were undoubtedly the sharp teeth of various animals; then, it is believed, pointed fragments of flint followed. The first manufactured metal nails were of bronze. The nail with which Jael killed Sisera was a wooden tent-pin, probably pointed with iron. Bronze nails have been found in the Swiss lake dwellings, in several places in France, and in the Valley of the Nile.

Until the last century iron nails were forged, a blacksmith being able to make

only two or three dozen a day. The first cut nails were made by Jeremiah Wilkinson in Rhode Island in 1775. The first patented nail machine was by Perkins, 1795, and its product of 200,000 nails a day was considered so enormous that some persons deemed the result due to a supernatural agency. Many improvements in nail-making machines, greatly increasing the quantity and quality of their output, have been made in the present century.

Ballad of Flinn

Senator William Flinn, of Pittsburg, has been ordered to keep out of his automobile for the rest of his life because his heart will not stand the vibrations attendant on speeding.—News Dispatch.

What! Flinn,
Never ag'in?

No more can ye ride in yer auto beside
The rest of th' bunch as they come
flyin' in?
Ah, Flinn,
'Tis sin!

But when ye sit down in yer invalid chair,
An' see all th' kiddies flung up in th' air,
An' think of the fun that you'd have bein' there.

Then, Flinn,
'Tis time to begin

To think of glory ye're goin' to win
By just sittin' there
In yer chair.

Ho! Flinn,
Sit down an' grin!

Think of th' speeders that's scorchin'
to-day,
Think of the fines that they're goin' to pay,
Think of th' speech that they're goin' to say
To the mourners they leave on the spin!

Ah, Flinn,
Ye're better within!

Ye're better right there in th' invalid chair
Than rompin' the' road in a devil-may-care,
Or flingin' the folks to th' devil knows where,
An' flingin' some dollars to pay for th' sin,
Flinn!

"Pittsburg Dispatch."

The Notable Mrs. Noah

A clergyman happened to tell his son one Saturday afternoon what lesson he would read in church the next morning. The boy got hold of his father's Bible, found the lesson's place, and glued together the connecting pages.

In consequence, the clergyman read to

his flock the following day that "when Noah was 120 years old he took unto himself a wife, who was"—here he turned the page—"140 cubits long, 40 cubits wide, built of gopher wood, and covered with pitch in and out."

After reading the passage, the clergyman read it again to verify it. Then, pushing back his spectacles, he looked gravely at the congregation and said:

"My friends, this is the first time I ever read that in the Bible, but I accept it as evidence of the assertion that we are fearfully and wonderfully made."—Argonaut.

The Human Body a Distillery

Some time before the Civil War a Southern physician, Dr. W. Hutson Ford, published in Charleston, S. C., a paper asserting that alcohol is normally produced in the human organism by the fermentation of sugar in the circulation. This alcohol, he maintained, is in its turn oxidized or "burned," and the two processes are a main source of animal heat. This theory of Dr. Ford's has recently been confirmed, we are told by *The Lancet* (London, November 10), by additional experiments which he describes in *The Journal of Physiology*. Says *The Lancet*:

"Dr. Ford supplies the details of experiments made on various organs of the body, and states that the quantities of alcohol obtained, though small, were very appreciable; thus from 6.970 grams of ox blood 0.0650 gram of alcohol was obtained, and from 870 grams of lung 0.0168 gram. The mean quantity of alcohol in 10,000 parts of blood was 0.0570 gram. The alcohol found in the tissues of Dr. Ford believes to be derived from dextrose, and he estimates that nearly 10 per cent of all the heat produced by the destruction of this dextrose in the body is to be credited to the molecular combinations comprised under the term fermentation, and a little more than 90 per cent or more to the progressive oxidation of the alcohol formed in the system."

Florida Races

Reports from Florida to the New York representatives of the Florida East Coast Automobile Association indicate that Florida this winter is going to have an increase of visitors over past years.

The travel will come from the West as well as from the East, and quite a number of automobilists have already shipped their cars South.

During the stay of the Glidden Tourists at Bretton Woods, N. H., the past summer Anderson & Price, the managers of the Bretton Woods hotels, spread themselves to please their guests, and when the latter were leaving they were surprised by receiving a substantial reduction from the regular hotel rates.

Messrs. Anderson & Price have decided to extend the same courtesy to the automobilists during the tournament week at Ormond this winter, as they fully appreciate the reputation that has come to their hotels with the aid of automobile drivers.

It would be well for those requiring hotel or garage accommodation at either Ormond, Seabreeze or Daytona that same be engaged at once.

In Winter

Automobilists should not waste time in experimenting with non-freezing solutions. Mr. O. W. Young, Newark, N. J., has solved the problem effectually, and the growing demand for his solution that prevents freezing in the pipes and radiators, as well as the Youngelene oil for cylinders bear ample testimony to the superiority of his compounds. There is nothing better or cheaper on the market.

There are several species of fish, reptiles and insects which never sleep during the whole of their existence. Among fish, it is positively known that pike, salmon and goldfish never sleep at all; also that there are several other fish that never sleep more than a few minutes a month. The only warm blooded animal that approaches the condition of insomnia is the county constable with graft tendencies watching for automobile speeders.

Mr. Augustus Post, the well-known automobilist, has compiled a pamphlet describing the best automobile route to the Jamestown Exposition. It is the route taken by Mr. Post in 1906, when he was investigating the best and most interesting route from Washington to Jamestown. It covers some of the most interesting scenes in Virginia and other localities which have played prominent parts in history. The pamphlet can be obtained free from Mr. Post, whose address is Automobile Club of America, 753 Fifth avenue, New York.

The question came to our Information Bureau: Which is the safer to ride on an automobile driven by a senseless scorcher or on the hind end car of a passenger train run in two sections over a railroad barren of block signals? Our answer is that given to another inquirer who asked: Where is safest place when an accident happens to a train? It is, at home in bed.

A firm of London motor manufacturers supplies its customers with specially colored confetti, which the motorists sprinkle when running through a police trap. Drivers who follow at once read the sign and act accordingly.

USE YOUNG'S Non-Freezing Solution

for your Radiators and
YOUNGELENE OIL
for your cylinders, and zero weather will not
mar your pleasure. Let us give you prices.

O. W. YOUNG
NEWARK, N. J.

GET A BUG GUN

(At any Druggist's)
Load it with

DIXON'S MOTOR GRAPHITE

Fire a little, now and then, in your engine
cylinders and see how much smoother they run
and how compression and power are increased.

USEFUL IN MANY OTHER PLACES

Free pamphlet for wise ones

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ASK YOUR DEALER FOR

Nathan's Auto Fabric Supplies

Tire Cases, Storm Covers, Tool Rolls, Joint Pro-
tectors, Dust Aprons and any article made of
Fabric for the Auto. Best and Cheapest. Circular
and prices on application.

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88-90 READE ST., NEW YORK

Get E. W. Roberts' **AUTOMOBILE
POCKETBOOK** if you want to get the
whole question of practical automobiling
boiled down to the smallest and most per-
fect shape. Price \$1.50 Book Department,
THE AUTOMOBILE MAGAZINE, 136
Liberty Street, New York.



Atlas No. 2.
Patent Applied For.

JUST OUT

The Atlas No. 1 and 2

Will raise any auto-
mobile with wheels 22
inches or over.

Height, 10 inches.

Weight, 5 pounds.

Height, 11 1/2 inches.

Weight, 6 pounds.

Can be worked at any
angle or in cramped
places.

Fits truss brace, round
or square axle.

Price, No. 1,
\$2.50

Price, No. 2,
\$3.00



The U. S. Jack Co.

128 Lake Street, U. S. Jack No. 1
CHICAGO, ILL. Patented July 10, 1906.
Price, \$2.50.



POCKET BATTERY AMMETER

0 to 30 Amperes

In testing single cells, the cord
is not necessary. Accurate.

Price \$3.50

Eldredge Electric Mfg. Co.
Dept. M. SPRINGFIELD, MASS.

Pierce Great Arrow Car

The makers of the Pierce Great Ar-
row Car here illustrated have not made
much difference in their 1907 model from
that which won the distinction this car
has attained. When one examines the
luxuriously equipped car the prevailing
feeling about it is a sense of comfort to
be enjoyed in an idea quickly confirmed
by a ride in the finely protected tonneau.

The car has four cylinders five by five
and one-half inches and develops 45 H. P.
at high speed. Transmission is by bevel
gear drive, sliding gear direct on high
speed. There are three speeds forward
and reverse. The frame is made of
pressed special carbon steel, channel sec-
tion 4 3/4 to 2 1/2 inches deep. The wheel
base is 124 inches and gauge of tread 56
inches. Wood artillery wheels, 36 inches
diameter, carry the car. The rear tires
are Goodrich, quick detachable, 4 inches

regardless of people and vehicles likely to
be hit. In his reckless haste Johnson ran his
car into the side of the automobile he was
pursuing, and then he found himself in a
hole, for the car struck was a police patrol
car looking out for just such dangerous
drivers as Johnson. That driver, instead
of taking the wrath to come meekly,
made a violent assault upon the driver of
the police car and caused much trouble
before he was locked up.

It was an outrageous case of violating
the law and putting many people in jeop-
ardy of life and limb. Withal when the
driver had been safely locked up and word
was sent to his employer the latter made
hot haste to bail out the culprit. A night
in the cooler would have had a salutary
effect. The zeal to defend cases of this
kind and to exonerate the offenders in-
dicate a fellow feeling with the law trans-
gressors.



45-H. P. PIERCE GREAT ARROW.

in front and 5 inches in rear, the latter
having the Goodrich-Bailey non-skid at-
tachment.

Equalized foot brakes on inside of
drums on hubs are used, both rear wheels.
Equalized hand brakes on outside of drum
on hubs, both rear wheels.

The equipment supplied consists of 2
side oil lamps, 1 tail oil lamp, 2 head gas
lamps and generator. Solar or Rush-
more mirror reflector, horn and full set
of tools, gasoline tank gauge, Veeder
odometer, 4 shock absorbers, extra tire
carrier, trunk rack, coat and blanket rail,
folding food rest.

A Fellow Feeling for Law Breakers

Many automobile owners take the stand
that their drivers can do no wrong and
help them out of every scrape they fall
into, no matter how richly they deserve
punishment. A representative case of this
kind has just happened in New York.
Alfred Johnson, who runs an automobile
for Maurice Untermyer, a New York
lawyer, made up his mind to pass a car
which he saw in front on one of New
York's crowded avenues and rushed along

Stopping Autos

The Prussian Government recently
completed a series of tests on stopping
automobiles and horse drawn vehicles.
The automobile won easily. A motor cab
stopped in five yards against thirty yards
in the case of a horse drawn vehicle. A
50 horse power automobile running
twenty miles an hour was stopped in two
yards, while a landau drawn by a pair
of horses went over eighteen yards be-
fore stopping.

One of the heaviest motor omnibuses
filled with passengers was stopped in
twelve yards without any inconvenience
to the passengers, while it took nineteen
yards for a horse drawn omnibus.

The big touring car had just whizzed
by with a roar like a gigantic rocket, and
Pat and Mike turned to watch it dis-
appear in a cloud of dust.

"Thim chug wagons must cost a heap
av cash," said Mike. "The rich is fairly
burnin' money."

"An' be the smell av it," sniffed Pat,
"it must be thot tainted money we do be
hearin' so much aboot."—Success.

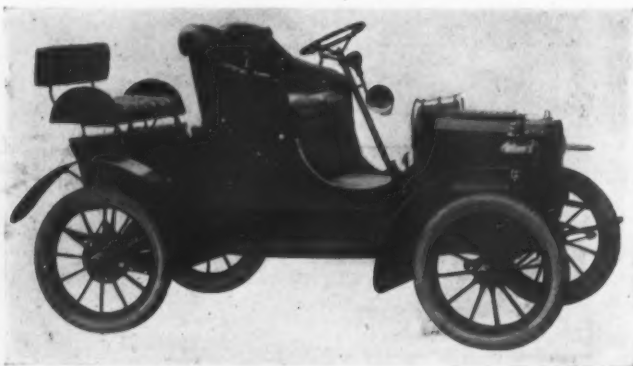
Reo Runabout

The following equipment will be embodied in the 1907 Reo Runabout. All of the essential features which have proven successful in the 1905 and 1906 models have been retained. * Horsepower has been increased. The rear axle is of a new and novel construction, providing means for inclosing the chain, and at the same time provides easy access for oiling the differential. The cam shaft construction is so designed, that it can be readily removed without disturbing any adjustment of the motor. The new design transmission, which is absolutely noiseless, strong and simple, is used. The wheel base is lengthened six inches. The chassis is 2½ inches lower than the 1906 car. The tonneau is two inches wider and gives 3½ inches more leg room. By means of a new metal curve dash an inch and one-half more leg room is provided in front.

The steering gear is of new construc-

daffodils. It is one of the so-called old-fashioned flowers, but it never ceases to be attractive.

Parkinson, in his "Paradisus," enumerates about forty kinds of daffodils. There are now about 2,000, most of them garden hybrids produced in the last fifty years. It is customary now to give the name of daffodil only to narcissi with large trumpets, but Parkinson called every kind of narcissus a daffodil, and, indeed, was rather hot about the matter. "Many idle and ignorant gardeners and others," he says, "who get names by stealth, as they do many other things, do call some of these Daffodils Narcissuses, when as all know that know any Latin, that Narcissus is the Latin name, and Daffodil the English, of one and the same thing; and therefore alone without any other epithite cannot properly distinguish several things." We can scarcely call the pheasant-eye narcissus a daffodil now, for everyone speaks of it as a narcissus; but



1907 REO RUNABOUT.

tion of the standard type, with means provided for making adjustment of all the wear. The gasoline capacity has been increased from 9 to 12 gallons, and the tanks are so arranged in the hood that they are close to the coil, doing away with a great deal of wiring and are very accessible. The oil shields are so arranged to protect the splash of oil on the body, which insures cleanliness. A fiber apron has been designed for the protection of the motor and chain, which is not only light, but is so designed that the usual rattle of the metal apron is avoided. A high class Solar generator is provided for furnishing the gas to a handsome set of gas lamps, and the lamp equipment on the 1907 Reo will be far superior to any lamp equipment on cars selling in our class. The lamps are furnished with bevel cut glass and mirror lens reflectors.

Daffodils

When the motorist sallies forth in the springtime after the confinement of winter, one of the first welcomes he receives from Nature is in the face of the beautiful

the word daffodil is so full of wild beauty and seems to carry with it so much music of poetry that we ought to use it as often as we can.

Fine vocalists are said to be rare in countries where fish and meat diets prevail. Naples and Genoa, where much fish is eaten, give few of Italy's singers; and the sweet voices of Ireland are found in the country, not in the towns. In Norway, too much fish is eaten for the production of singers, but Sweden is a land of grain and song.

Here is the pithiest sermon ever preached: "Our ingress into life is naked and bare, our progress through life is trouble and care, our egress out of it we know not where, but doing well here we shall do well there; I could not tell more by preaching a year."

Color-blindness is most common among men, and it does not follow that there is any defect in the eyesight, apart from it. The cause of it is in the sensorium, not the visual organ.

Prolong the Life of Your Battery

by keeping it always full of current, and in the best of condition, by installing an APPLE BATTERY CHARGER. A dynamo right on your car that charges your battery while it is giving off current. A sure and reliable source of current at your command, no matter what happens. Write today for full information. The Dayton Elec. Mfg. Co. 170 St. Clair St., Dayton, Ohio



Enterprise Tire Repair Co.

F. HOLLISTER DEARBORN, Mgr.

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Vulcanizing of every description.

Re-covering a specialty.

All work guaranteed.

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Arc-Spark Mfg. Co.

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NEW YORK

Standard-\$1.50-Metric

Write for

"The Man a-Motoring"

Arctic Non-Freezing Solution

Guaranteed not to rust or corrode the water circulation

Guaranteed also not to freeze at 40° below zero and to have a boiling point very much higher than water. Ready for use in five-gallon cans at \$3.00 per can.

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Large Stock Second-Hand Foreign Cars Ready for Demonstration.

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Limousine and Touring Bodies. Reliable Drivers, Foreign and Domestic. Address

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ROAD MAPS Specially designed and bound in pocket form for the use of Touring Automobilists. EASTERN—New York State, 75c.; New Jersey, 50c.; Pennsylvania, 50c.; Maryland and Delaware, 75c. WESTERN—Ohio, 50c.; S. W. Ohio, 50c.; No. Ohio, 50c.; Indiana, 50c.; So. Indiana, 50c.; N. W. Indiana, (just out) 50c.; Illinois, 50c.; Michigan, 50c.; Iowa, 50c.; Missouri, 50c.; Wisconsin, 50c.; Kentucky, 50c. C. S. MENDENHALL, Publisher, Opera Place, Cincinnati, O.



Quality first—then price.

You can buy a Corbin car sure of the fact that the price represents a full measure of value.

You want quality—here it is.

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Member Association Licensed Automobile Mfrs.

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1534 Broadway (Times Square), N. Y. City		
Everything for Electrical Ignition		
Sole Agents for B. P. O. Ignition System		
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The IGNITION PROBLEM is SOLVED In the "Lacoste" High Tension Magneto for Jump Spark Ignition

We guarantee this device to be absolutely perfect. We have done the experimenting. No Batteries. No Coil. No Commutator. Everything for Electrical Ignition.

LEON RUBAY, Sole U. S. Agt., 140 W. 38th St., N. Y.



STA-RITE
"STAYS RIGHT THE LONGEST"

Sta-Rite Plugs STAY RIGHT LONGER than all others because they have Double Porcelains, Non-Short circuiting air space, self packing joints, 47 Sizes. Porcelain, \$1.50. Indestructible Mica, \$1.75. Dynamos, Coils, Timers, etc.

THE E. E. HARDY CO., 86 Wall Street, New York City

116 Lake St., Chicago, Ill. E. J. Day & Co., Berkeley, Cal.

Reliable Steel

Thomas Prosser & Son, Gold street, New York, had an exhibit at the A. C. A. show which attracted much attention from the fact that it gave ocular demonstration of the hard usage to which first-class steel can be subjected without breakage.

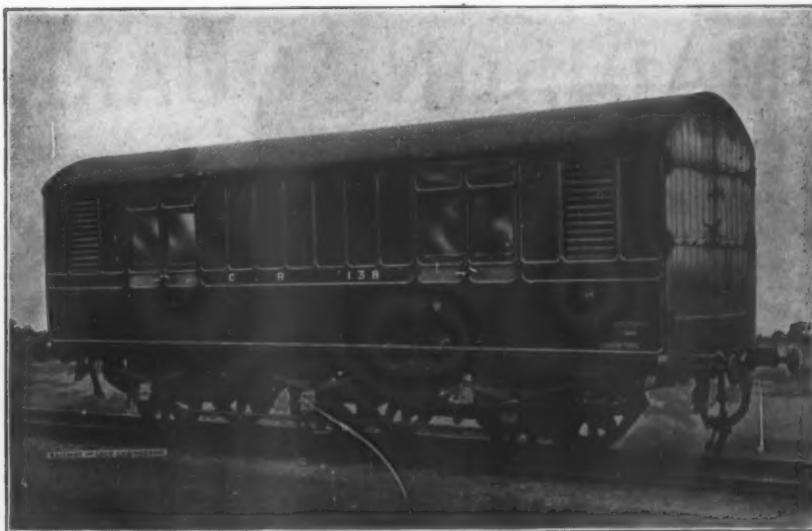
Thomas Prosser & Son are the American agents for the famous Krupp steel, which has long been recognized as the best for purposes involving great stresses and sudden destruction shocks. It has paid railroad companies to pay the high duty on Krupp steel that they could use it for tires and for other purposes where a less reliable material is dangerous.

The indications now are that Thomas Prosser & Son will soon be as successful

plorers witness places hard to reach. We sit at home and wonder how much benefit mankind would derive from a description of the North Pole by one who had been there. It will make a magnificent newspaper scoop for Wellman if he ever gets there and it will be of as little benefit to the world as newspaper scoops usually are.

Auto Show for Detroit

The Tri-State Automobile and Sporting Goods Association has received the sanction from the Automobile and Accessory Manufacturers, Inc., to hold a show in Detroit, February 11 to 16, 1907, inclusive.



CALEDONIAN RY. VAN FOR THE CARRIAGE OF AUTOMOBILES.

with material needed in the construction of automobiles as they have been for that used in railway machinery. They are handling Krupp's Special Chrome Steel, which can be used unhardened, having a minimum elastic limit of 95,000 pounds and other properties equally high. If an intended purchaser finds that a maker is using Krupp steel for the principal parts of an automobile he may safely place his order.

Englishmen traveling in Scotland are noted for the critical remarks they make about the names of Scottish stations, as called out by the trainmen. One of these people on his way to Glasgow heard the call, "Motherwell." "Glad to hear she's well," he told the other passengers, "is Fatherwell next?" "No," replied a practical Scot, "but we will soon be at Bothwell."

Walter Wellman thinks that had he been at the point reached by Peary and had his balloon and ice automobile along the silence of the Pole would have been gazed upon with the rapture that ex-

As indicating the amount of business done by the accessory people at the Grand Central Palace show in New York, it is worth noting that the Hartford Suspension Company took orders for 534 sets of the well-known Truffault-Hartford Shock Absorbers. These orders are in addition to those coming from the fifteen manufacturers who regularly equip their cars with the device.

Of the 1907 automobile literature being distributed, among the finest is the new catalogue being sent out by the Autocar Company, of Ardmore, Pa.

The book contains a number of large half-tone cuts of the cars and various working parts, and is a work of art, as well as a concise exposition of the mechanical details of the Autocar.

A Chicago agent fretting to himself recently, expressed this sentiment: "I don't care when I get a crankless automobile, a joltless spring and a heatless motor, if I can only find a fineless chauffeur!"

Seventh National
AUTOMOBILE SHOW

JANUARY 12 to 19, 1907

AS USUAL AT

MADISON SQUARE GARDEN

Under the Direction of the

ASSOCIATION OF LICENSED AUTOMOBILE MANUFACTURERS

The Following Leading Makes of American and Foreign Cars will be Exhibited by
Licensees Under the Selden Patent

APPERSON
AUTOCAR
BUICK
CADILLAC
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CORBIN
CLEMENT-BAYARD
COLUMBIA
DARRACQ
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DECAUVILLE
ELMORE
ENGLISH DAIMLER
FIAT

FRANKLIN
HAYNES
HEWITT
HOTCHKISS
ISOTTA-FRASCHINI
KNOX
LOCOMOBILE
LOZIER
MATHESON
NORTHERN
OLDSMOBILE
PACKARD
PANHARD
PEERLESS
PIERCE GREAT ARROW

POPE-HARTFORD
POPE-TOLEDO
POPE-TRIBUNE
RENAULT
ROCHET-SCHNEIDER
ROYAL-TOURIST
S. & M. SIMPLEX
STEARNS
STEVENS-DURYEA
STUDEBAKER
THOMAS
WALTER
WALTHAM-ORIENT
WINTON

Also

Complete Exhibits by The Importers Automobile Salon, Incorporated, and The Motor and
Accessories Manufacturers, Incorporated.

Of Personal Interest

Henry Hartley, a well known automobilist of Boston, will spend the winter touring Italy in a 35-H. P. touring car.

David Johnson, the owner of the famous Roseben, has placed an order for a 1907 H. P. Matheson touring car, early delivery.

George F. Kehew, formerly with Bloomstrom and the De Luxe car, was recently appointed sales manager of the Moon car, of St. Louis.

A recent recruit to the ranks of autoists is Senator Chauncey M. Depew, who has taken out a New York State license to run a 35-H. P. French car.

Ralph Mongini, the driver for the Matheson in the Vanderbilt Cup race, will act as head demonstrator and salesman for the company in New York.

D. J. Hayden, formerly sales manager of the Marion Motor Car Company, has accepted the management of the Griffen Motor Company, of Fort Wayne, Ind.

George H. Grout, formerly connected with the bicycle industry in Chicago, has been appointed sales manager of the Electric Vehicle Company, with headquarters at Hartford.

Thomas A. Edison recently purchased of Cryder & Co. a 28-36 H. P. French Mors, which was exhibited at the show. It is equipped with the Mors automatic starting device.

D. H. Loring, of New York, has purchased a 50 H. P. Panhard touring car. The car is identical to that owned by the King of Spain, one of which was exhibited at the show.

B. J. Collins, formerly with the B. F. Goodrich Company, has joined the forces of the Continental Caoutchouc Company to act in the capacity of General Representative of that firm.

Charles Clifton, treasurer of the Geo. N. Pierce Co., has been re-elected president of the Association of Licensed Automobile Manufacturers. Mr. Clifton is now abroad on a tour for health.

Warren Summers recently accepted a position with the Thomas Motor Car Co. of Buffalo. For the past two years Mr.

Summers has been with the Canadian branch of the Oldsmobile Co., located at St. Catharines, Ont.

George H. Jones, a prominent manufacturer of South Norwalk, Conn., accompanied by Mrs. Jones and the Misses Jones, passed through Philadelphia recently in their new 1907 Royal Tourist enroute for Old Point Comfort.

Mr. and Mrs. J. Kennedy Tod and Miss M. H. Stevenson of New York, in a 45-H. P. Royal Tourist, passed through Boston recently. The found the roads in bad condition, though no worse than was to be expected at this time of the year.

H. A. Cummings, who has been connected with the Broadway Automobile



JAMES J. BRADY,
and V. President of the E. R. Thomas Detroit
Co., Detroit, Mich.

Company, of Seattle, Wash., has severed his connection with that concern to accept the position of sales manager of the recently organized Eureka Motor Company.

Mrs. Rose Kirby Stewart, of Camden, N. J., has purchased a Model 20 Rambler 20-H. P. touring car. Mrs. Stewart is devoted to automobiling and is one of the few women in that vicinity who is able to care for her car and handle it with ease.

An automobile highway from Atlanta, Ga., to Washington, has been suggested by J. Fred Harvey, of Boston. Mr. Harvey made the suggestion during a recent

visit to Atlanta, and his plan has met with the enthusiastic approval of the automobilists of that city.

F. W. Ansley has been chosen as Franklin representative for New York and New England. Mr. Ansley is well acquainted with many of the dealers throughout the country and also is thoroughly familiar with Franklin motor cars and their construction.

Asa Goddard, formerly the director from the Worcester Club, Mass., of the American Automobile Association, but now secretary of the Cleveland Automobile Club, visited the Automobile Show last month. He came in with a large party of Cleveland motorists.

Fred P. Brand, sales manager of the Autocar Company, Ardmore, Pa., is making a trip through the West, conferring with dealers as to the handling of the Autocar output for 1907. He will visit Chicago, Denver, St. Louis, Los Angeles, San Francisco, Portland and Seattle.

In his capacity as consulting engineer, Joseph Tracy has been engaged by the Dragon Automobile Company to cast his critical and experienced eye over the new car. Among other things, he will subject the Dragon engine to monograph tests in order to assure the highest efficiency.

C. W. Kelsey, sales manager of the Maxwell-Briscoe Motor Company, sailed recently for Europe on the steamship St. Paul. Mr. Kelsey will inspect the Paris show and will visit a number of factories abroad. He will be gone about a month. Mr. Kelsey was accompanied by Lucius Tyler, of Boston.

A new committee has just been appointed by the Association of Licensed Automobile Manufacturers, to take charge of several important details of the coming show in Madison Square Garden. Its members are F. L. Smith, chairman; E. R. Thomas, M. J. Budlong, C. B. Sharks and J. A. Kingman.

J. B. Bartholomew, president of the Bartholomew Company, makers of the Glide automobiles, and treasurer of the American Motor Car Manufacturers' Association, sailed from New York last month for Rio de Janeiro and Buenos Ayres, in order to look into the trade possibilities of South America.

Healy Leather Tires

Do not PUNCTURE

Do not SKID

Do not RIM-CUT

Do not BLOW OUT

Healy Leather Tire Co.

88-90 Gold Street, New York City

UPTOWN BRANCH

1906 Broadway

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The Princess of Wales, who, like the Queen Dowager of Italy, is an enthusiastic automobilist, is having an auto built expressly after her own ideas. It is described as a quite modest appearing vehicle with nothing but the initials "V. M.," surmounted by a crown, on the door panels to distinguish it. The body of the auto is green.

Circuit Judge Weist, sitting at Lansing, Mich., has rendered a decision that pedestrians need not run when an automobilist blows his horn for them to get out of the way.

Judge Weist said in part: "People in the street are not required to run at the tooting of a horn, for their rights are equal to those of the blower of the horn."

Col. Jas. H. Sprague has donated one of his new folding plate glass fronts to the Florida East Coast Automobile Association as a prize in the Fifth Annual International Races, which take place at Ormond-Daytona Beach, Florida, Jan. 22 to 27, 1907. This front is the prize for event No. 15 for the five miles, standing start, touring cars, listing from \$1,500 to \$3,000.

Oscar Tamm, of Tamm, Ill., a thriving town established by and named after him, will again endeavor to satisfy his desire for sight seeing with an automobile tour of France, Germany and Austria. To that end he has ordered an eighty horse power machine in Paris, which will be ready for him May 16th next. Mr. Joseph Pesch will accompany him on his tour.

The Matheson yellow and black run-about, winner of the Long Beach races, driven by Ralph Mongini, was recently sold to R. G. Kelsey, of *Brooklyn Life*. Mr. Kelsey purchased this semi-racing car for the purpose of making a special run from New York to Chicago, returning by way of Detroit. Mr. Kelsey, with his mechanic and timer, started from New York on Dec. 16th.

C. E. Knoblach has returned from a four months' tour of Italy, Austria, Spain and Germany in his 40-45 H. P. Columbia, and had a most interesting trip. He says that he brought back vivid impressions of the uniformly good roads, absence of absurd speed regulations, and the amiability of pedestrians and other users of the highway, all of which is in marked contrast to touring conditions in some parts of this country.

O. E. Shepard, of Campbell, Cal., is the latest candidate for the "non-puncture record." He has driven a Diamond tired Rambler touring car for nearly two

years, during which period, it is said, he has traveled 25,500 miles. In the course of that time one of his tires has not only escaped puncture, but has never been removed from the rim for any purpose. Of course, it needs retreading badly, but otherwise is said to be in good condition.

Mr. John A. Seaverns, a Boston motorist, keeps tabs on his autoing expenses. He recently made a run in his Aerocar from Marblehead, Mass., to Brooklyn, N. Y., and return, a distance of 650 miles. There were four passengers in the car, together with luggage and touring equipment, weighing in all 3,600 lbs. The gasoline average 29¼ ton-miles per gallon, while the total amount of oil used was seven quarts. This was at a cost of only 1¼ cents per mile for the party.

A dispatch received from Indianapolis announces that A. C. Webb is on his way



ROY D. BRITTON,
Secretary Automobile Club, St. Louis.

from his home at Joplin, Mo., to Fort Worth, Tex., where he is booked to cover the circuit between the latter place and Galveston by way of Houston in the Premier Vanderbilt racer, sent from Indianapolis by express. In view of Webb's brilliant performance at Kansas City and Indianapolis recently, motorists will await the outcome of the forthcoming race meet at Galveston with keen interest. Colonel E. H. R. Green is said to be the chief promotor of the meet.

Plowing through mud, fender deep, A. L. Aldrich, of Evanston, Ill., and G. Monsen, of Chicago, have demonstrated their disregard of weather or high conditions, at this season of the year, by completing a cross-country automobile

run from New York to Chicago. The trip of nearly 1,200, which occupied six days, was made in a forty-five horse power Pierce Great Arrow touring car. Mr. Aldrich and Mr. Monsen made the trip from Chicago to New York in September, before the Vanderbilt cup race. At that time there were women in the party, and the journey was a pleasant jaunt. Conditions were reversed on their return trip, and the two men were unaccompanied.

The Florida East Coast Automobile Association, in regular session last month elected the following new members: Dr. F. H. Houghton, James O. Wynn, George H. Gardiner, Chris. Gourey, H. C. Godman, Frank Rogers, H. L. Robidere and T. F. Williams. Race committee was appointed as follows: Commodore, J. H. Allen, chairman; associates, S. H. Gove and George E. Sebring. Edward White was elected as a member of the house committee, Messrs. Gove and Schmidt having been named at a previous meeting. The work of poling and wiring the beach was ordered begun, that everything might be in readiness for the great meet of January 22-27.

R. L. Allcutt, who has for the past three years acted as assistant manager of the Knox Automobile Company of New York, has been appointed general manager of the Knox Automobile Company of Illinois (Inc.), and assumed his duties last month.

Mr. Allcutt has made an enviable record in New York, having devoted the greater part of his time and energies to the development of the commercial vehicle, the number of which, in New York, bear the best testimony to the success of his efforts.

While hailing recently from the "Great White Way," Mr. Allcutt is a native of Chicago, and consequently will not come as a stranger, and his re-entrance to his old field will be watched with considerable interest.

At a meeting of the membership committee of the Automobile Club of Buffalo, held recently, 35 applications were favorably received. They were as follows: Harry T. Ramsdell, Charles W. Goodyear, Arthur L. Georger, Gustave A. Kayser, A. E. Lambert, Edward Gaskin, Edgar B. Jewett, F. B. H. Paine, W. V. Grove, Frank S. Trudnowski, Nelson C. Spencer, W. W. Grantier, G. A. Blanchard, F. M. Parker, W. C. Dudley, Charles Hummell, Charles L. Schutrum, Charles J. Laub, G. G. Meinell, George W. Smith, Julius I. Block, George E. Zeiler, E. A. Rooney, E. M. Statler, F. F. Flint, M. Dunning, Joseph Miller, F. V. Greene, A. J. Sanderson, Morris Benson, George K. Birge, W. H. Andrews,

THE ROYAL TOURIST

If you are interested in the wonderful development of the motor car see one of the

1907 Model G, Series 2, ROYAL TOURISTS

IT IS AMERICA'S LEADING CAR

45 H. P. \$4,000.00 7 Passenger

THE ROYAL MOTOR CAR CO.
CLEVELAND

Member Association of Licensed Automobile Manufacturers

See the famous Royal Tourists at 7th Annual Auto Show in New York. Also at Philadelphia and Chicago Shows

New York Show
Dec. 1 to 8 1906

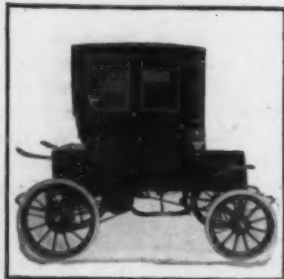
WE GO TO SHOW

Chicago Show
Feb. 2 to 9 1907

THAT WOODS VEHICLES ARE THE BEST

You do not see us in heavy print often for we let our customers advertise us

Our popular car for 1907 is the Queen Victoria with interchangeable, summer and winter, tops. The ideal vehicle for city use in all seasons.



Our forty h. p. Gasoline Touring Cars are of the highest grade. We have over 1000 users of our vehicles in Chicago. Eight years of consistent development have made the Woods incomparable and we challenge all others as to results.



WOODS
MOTOR VEHICLE CO.
CHICAGO

ASK FOR CATALOGUE AND LOCATION OF NEAREST AGENCY
IF YOU WANT DELIVERY ORDER NOW

Woods Motor Vehicle Co., CHICAGO, ILLS.

Carl L. Rafferty, Pete Klippel, J. E. Carroll. The above, in addition to club membership, also receive membership in the New York State Automobile Association and the American Automobile Association.

Mr. George Ahrents, the millionaire motorist, recently escaped from a serious controversy with the police authorities, which should prove a valuable lesson to automobile drivers. Last month a man was killed by a car running over him, and the only identification received by the authorities was the last three numbers of the license being 124. The subsequent investigation located Mr. Ahrents' car in the garage of Wyckoff, Church & Partridge, Broadway, at Fifty-sixth street, which bore the license number of 34,124. Mr. Ahrents and his chauffeur were immediately apprehended, and but for the checking system of the company where he stored his car, serious trouble would have resulted. He was, however, able to produce an abundance of testimony that the accident to the unfortunate victim occurred at 8 P. M., while the records in the garage showed positively that the car had been checked in at 5:46, and had not been outside of the building after that hour.

Dr. G. S. Chapin and Mr. H. S. Michaels have completed a trip from Chicago to New York and prepared an elaborate report which is submitted to a committee of Congress in regard to the proposed national highway between New York and Chicago. Both gentlemen are loud in their praise of the Haynes car, which carried them over all kinds of roads in every kind of weather without a mishap. In exploring some remote parts of the proposed route the tourists created as much interest as a circus would have done. Both state that the roads in New York State are the best.

The following names have been proposed for active membership in the Automobile Club of America: E. A. Barry, 1153 Boston Road, N. Y. City; H. R. Bishop, Chappaqua, N. Y.; Evans R. Dick, 51 E. 49th St., N. Y.; Abram I. Elkus, 26 E. 61st St., N. Y.; Donald G. Ceddes, 51 Wall St., N. Y.; Elbridge T. Gerry, 258 Broadway, N. Y.; George V. Hagerty, National Enameling & Stamping Company, N. Y.; G. Trowbridge Hollister, 18 E. 70th St., N. Y. John Ennes Kane, 49 W. 23rd St., N. Y.; Williston B. Lockwood, 205 W. 57th St., N. Y.; Charles A. Manice, 70 W. 85th St., N. Y.; Wm. Manice, 55 William St., N. Y.; W. H. Marshall, Am. Locomotive Company, N. Y.; J. Adolph Mollenhauer, 156 S. 9th St., Brooklyn, N. Y.; A. R. Pardington, 2nd Vice-President, L. I. Mortor Parkway, Inc., S. Osgood Pell, St. Regis

Hotel, N. Y.; Wm. F. Sheehan, 16 E. 56th St., N. Y.; Lindsley Tappin, 155 E. 72nd St., N. Y.; A. M. Thackara, Jr., 133 W. 49th St., N. Y.; Charles S. Thorne, 30 Pine St., N. Y.; W. F. Wilmoth, Hotel Martinique, N. Y.; Bronson Winthrop, 23 E. 33rd St. N. Y. For associate membership: Robert K. Cassatt, Rosemont, Pa.; Hugert Laughlin, Pittsburg, Pa.; Jas. Laughlin, Jr., The Jones & Laughlin Steel Co., Pittsburg, Pa.; Jas. Laughlin, 3rd. Cleveland Motor Car Co., Cleveland, Ohio; Edwin H. Titler, 1631 Locust St., Philadelphia, Pa., and George H. May, Fabrikoid Co., Newburgh, N. Y.

Bound for the Top

William Leslie French, who is working his way into prominence in the publicity business for motor car makers, has received a training which proves of the



WILLIAM LESLIE FRENCH.

greatest help in working up methods of publicity. Mr. French is a college graduate, which ensures a sound education, but his most valuable equipment as an advertising manager was received after he went to work. He learned the arts of book binding, pottery and illuminating at the famous Roycroft Shops, East Aurora, under Elbert Hubbard. Among his side studies was that of handwriting and graphology, which led him to working as a handwriting expert which he followed for ten years. Then he was editor of the Back Log Magazine, assistant editor of Vim and a devotee of general newspaper and magazine work. Mr. French possesses unusual training which enables him to write a book, make the illustrations and bind it, all these operations being performed in first class style. Besides having these accomplishments Mr. French is by blood a pure Scot, which is a guarantee that he must succeed in anything which he undertakes to do.

An Accomplished Chauffeur

Mayor Eugene E. Schmitz, of San Francisco, gained some celebrity through managing with vigorous ability the tangled wreck of property caused by the earthquake. Among the noted feats he performed was running automobiles to relieve and transport sufferers to shelter. Before going into politics Schmitz was an excellent cornet player in an orchestra. As a labor union member his powerful personality made him a leader. San Francisco being ruled by labor unions it was an easy move for the strenuous cornet player to become Mayor.

When labor leaders reach supreme power they display the same characteristics that representatives of capital did before the rights of aristocracy to rule became questioned. They think the earth and everything thereon belongs to them. Mayor Schmitz is accused of practices that are vulgarly termed grafting, and the consequences may lead him to a condition of unholy restraint for a time. Schmitz has, however, a consolation denied to many rogues. If he cannot be a Mayor or a walking delegate to make a livelihood, he can obtain a job as a chauffeur or a cornet player. The acquisition of skill in any calling makes a man independent.

The great success of the Palace Automobile Show of New York in December was due to the excellent management of Secretary Butler, of the Automobile Club of America. His helpful hand and clarifying direction were everywhere in evidence. No number of harassing questions could ruffle his genial face; no unreasonable complaint could elicit impatient reply. He was always courteous and obliging—the right man in the right place.

They say that Mrs. Bellamy Storer, "the American Ambassadors," is a lover of automobiles and handles the steering wheel with confidence. We have no doubt that is true. When one looks at the Storers together the impression received is that there is one strong person in the pair. If two were divided by two, one would be left, and in this case nothing would remain except the female.

A Wondrous Tale.

Five or six men were chatting in a village inn, when one of them said: "I say, I bet ye dinners all round ye can't tell me the answer to a puzzle I know of." "Done," said they; "I bet we can. What is it?" "Well," said Pat, "why is a journalist the funniest creature in the world?" After vainly trying for about two hours, they sadly said they must give it up. "Why," said the delighted Pat, "because his tale comes out of his head don't it?"



1907 TYPE "B"

4 Cylinder

25-40 H. P.

4 Passenger

PRICE \$2500

DEERE

SPECIFICATIONS

MOTOR. Four cylinder, water cooled. Cylinders 4 x 5, H. P. 35, 40.

TRANSMISSION. Selective, no gears slide, roller bearing.

REAR AXLE. Clutch driven, floating type.

FRONT AXLE. I-beam section.

FRAME. Pressed steel, with subframe.

SPRINGS. Elliptic scroll, rear 38 inches long, semi-elliptic front 40 inches long.

LUBRICATION. Crandall, six feed mechanical oiler.

SHAFT DRIVE. With bevel gears.

IGNITION. Storage battery, six dry cells.

BRAKES. Exterior and interior brakes on rear hubs, foot pedal and side lever respectively.

BODY. Wood, straight line design, seats four comfortably.

TIRES. 34 inches by four inches.

GASOLINE. Eighteen gallon tank under front seat, glass gauge.

WATER. Capacity, four gallons.

MUFFLER. Free, silent with no back pressure.

CARBURETOR. Float feed type.

CLUTCH. Disc clutch, metal to metal, roller bearing, carried in flywheel.

WHEEL BASE. One hundred and six inches.

CLEARANCE. Nine inches.

COLORS. Seal brown, standard, any color on time orders.

EQUIPMENT. Three oil lamps, two gas lamps, generator, clock, dragon horn, kit of tools; in fact, car ready for road use.

WEIGHT. Twenty-three hundred and fifty pounds.

Our 1907 Catalogue tells you all about it.

DEERE-CLARK MOTOR CAR CO.

117 BLACKHAWK AVENUE, MOLINE, ILL.

Ofeldt Boilers

One of the most economical as well as effective forms of boiler for the generation of steam that has appeared in recent years is the Ofeldt Boiler, consisting of a multiple series of coiled pipes encased. The chief feature worthy of attention is that in this form of boiler every drop of water may be evaporated and cold water turned in with no injurious effect. The boiler is literally unburstable. In addition to this admirable feature is the fact that the cheapest kinds of liquid fuel can be used to great advantage. The burner used has in addition to a series of jets a coiled admission pipe where the kerosene or other fuel passes through becoming vaporized under the action of the fire rendering the fire absolutely free from smell or smoke.

The boiler has been received with much favor by the builders of small yachts and boats and has already been adapted to the use of automobiles, where its features of simplicity and economy have met with deserved recognition.

Westinghouse Car Ahead

Word has reached this country from abroad that the race for turing cars—*Concours de Regularité*—between Paris and Monte Carlo, which began in Paris on November 26, was finished on Wednesday afternoon. Westinghouse cars won the first and second prizes, the second car coming in five minutes behind the first. The race started with forty-one cars contesting and by 3 o'clock on Wednesday afternoon ten machines had finished. The contest was conducted along much the same lines as the Glidden tour, one of the conditions being that no car was allowed to make an average run of less than twenty-three miles an hour, and another, that the car finishing first on one day was obliged to start last on the succeeding day. In spite of this handicap, the winning cars finished first and second on each of the eight days of the race.

This car attracted extraordinary attention at the A. C. A. Show, a crowd of interested persons being around it most of the time. Several sales being effected.

Ford and Malcomson

When Henry Ford started out to strive for the leadership in automobile making he was financed by Alex. Y. Malcomson, the largest coal operator in Michigan. They were congenial associates and won success. Then Mr. Malcomson gave up his interest in automobile building for a time.

Recently Mr. Malcomson loomed up as president of the Aero Car Company. By one of those curious coincidences so often happening in this small world Mr. Ford and Mr. Malcomson found their exhibits

at the Automobile Show located side by side, a proximity that led to renewal of the intercourse which had been broken off for a time.

New Motor Coach

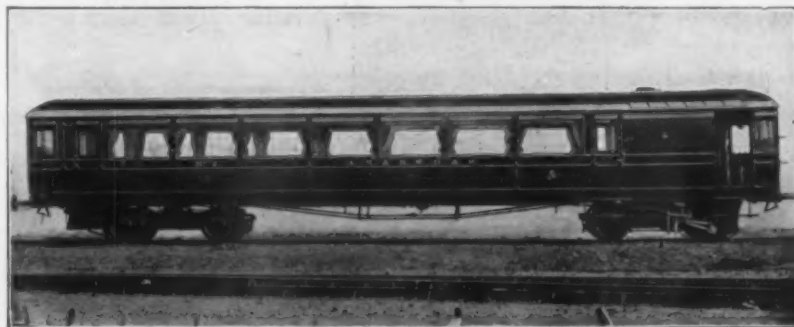
By E. C. Morel

The motor coach which we illustrate has recently been put into service by the Glasgow (Scotland) Railway Company. This car is undoubtedly the finest that has yet been put upon the railway. It has a length over buffers of 64 ft. 11 ins., a width over carriage body of 8 ft. 6 ins., and height from rail to carriage roof of 12 ft. 4½ ins., and weighs, when in working order, 35 tons.

Steam is generated in a locomotive type boiler, having a working pressure of 160 lbs. per sq. in. and a total heating surface

egress. The vestibule is fitted with steps for taking up passengers from the level of the permanent way, and there are also hinged platforms for railway stations.

The rear end driving compartment is fitted with a sliding door, so that the driver is separated from the passengers entering and leaving the carriage, while a speaking tube communicates between the driving compartment and the motor compartment, and electric bells are available for communicating between those compartments and the passenger compartments. Electricity, generated by a De Leval steam turbine dynamo, placed on the footplate, under the control of the driver, is used for lighting the car, each of the head lamps being of 50 candle power. The car can also be heated by steam.



STEAM MOTOR CAR USED IN GLASGOW.

of 347 sq. ft. The fire box is fitted with Drummond water tubes. The cylinders are 9x14 ins. and are fixed on the outside of the bogie frame plates, and fitted with Welschaerts valve gear.

The water tanks, containing 350 gallons, and coal bunkers having a capacity of one ton, are placed on each side of the boiler, and are carried on the underframe of the carriage. The steam regulator and reversing gear are arranged to be worked from either end of the carriage, by means of rods and levers, so that the driver has at all times a clear look-out in the direction in which the carriage is traveling. The whistle and steam brake can also be worked from either end of the carriage. In addition to the steam brake, powerful hand-brakes are fitted to both bogies. There is seating accommodation for 54 passengers. The interior of the passenger compartment is paneled with birdseye maple, finished with teak and mahogany. The seats, which are placed longitudinally, are of plaited rush matting, over springs, and are very comfortable and easily cleaned. Ample ventilation is secured by ordinary sliding ventilators in the sides of the clerestory roof. Passengers enter through a doorway from a vestibule at the rear end and in addition, doors are placed on each side of the carriage at the end next the motor compartment, to further facilitate ingress and

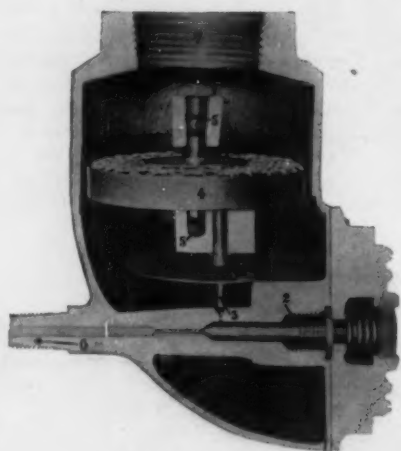
Traction Tread Tire Travels

From some cause or other the Traction Tread Tire Co. failed to secure space in the A. C. A. Automobile Show, but they were well in evidence with their famous 1907 model. The Canover car attracted more than its natural share of attention because it was equipped with the Traction Tread Tire. While lingering around that spot we were regaled with much praise for the Traction Tread Tires related by automobilists who had run them many miles without the least trouble. One man remarked that he had run a set of these tires 5,500 miles without pumping. He remarked that the invention is putting pumps out of fashion.

"Music hath charms to soothe the savage breast," quoted the young lady with a simper as she seated herself at the piano. "That may be," muttered a crusty bachelor, "but there are some of us in this crowd who are civilized, and deserve a little consideration."

"He said he would lay the earth at my feet," said the sentimental girl. "Yes," answered Miss Cayenne; "it sounds good, but it is not practical. You already have the earth at your feet. What you want is a three or four story house over your head."

"The Carbureter That Carburets"



The difference between a Carbureter that CARBURETS and one that simply feeds gasoline and air FOR THE ENGINE TO CARBURET is the difference between PERFECT and IMPERFECT engine operation.

See our exhibit at Madison Square Garden, Space 230, and let our demonstrators SHOW YOU.

HEATH DRY-GAS CO., 1937 Broadway, New York

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IF YOU ARE IN NEED OF

Supplies or Repairs

FOR YOUR AUTOMOBILE

Mention The Automobile Magazine when purchasing

We Will Save You Money

IF YOU USE OUR
MILWAUKEE RADIATOR COMPOUND
OR OUR
**MILWAUKEE COMBINATION
ANTI-FREEZING COMPOUND**

because the lime and impurities of your cooling water in Radiators and Water-Jackets settle and form a scale on the metal. One-eighth of an inch scale around your water-jacket increases your lubricating oil bills 30 per cent., besides it cuts down the life of your Motor on account of improper cooling.

If you add our MILWAUKEE RADIATOR COMPOUND to your cooling water, your water-jackets and radiators will always be free from scale, therefore guarantee a proper cooling, save your money on lubricating oil bills and lengthen the life of your cylinders.

OUR MILWAUKEE COMBINATION ANTI-FREEZING COMPOUND does the same thing as our RADIATOR COMPOUND and is superior to any ANTI-FREEZING COMPOUND on the market to-day. Water containing this compound in proper quantities, and according to our directions, will not freeze at a temperature as low as 30 degrees below zero, and it does not injure the metal.

Prices are as follows:

MILWAUKEE RADIATOR COMPOUND, Per Gallon Can.	\$1.00
MILWAUKEE COMBINATION ANTI-FREEZING COM- POUND Per Gallon Can.	1.25

A liberal discount will be allowed on cases containing one dozen gallon cans or more and also on bulk orders. These preparations are cheaper than anything on the market to-day, and as to quality they cannot be beaten.

BADGER MFG. AND SUPPLY CO.

Dept. "B"

MILWAUKEE, WIS.

Among Garages

A. H. Brown is now handling the product of the Warner Instrument Company in New England, with headquarters at No. 925 Boylston street, Boston, Mass.

A Philadelphia agency of the Haynes car has been opened at 220 North Broad street, with H. Hunter as manager. Mr. Hunter was formerly with the Maxwell Co.

The Northern Automobile agency of San Francisco, has just placed an order for forty cars evenly divided between their two cylinder and four cylinder models.

Another motor car company has been added to Cleveland's long line of automobile factories. The new concern will be known as the Metropolitan Motor Car Company.

The Palace Garage Company have purchased the plot on the south side of Eighth street, 102 feet east of Broadway, 48 by 100, on which they will erect a six-story garage.

A new garage is to be erected by the Foss-Hughes Motor Co., Philadelphia, at 22 North Watts street. The cost of the building, which will measure 34 x 58 feet, will be about \$8,000.

A new Pittsburg concern is about to turn out a new light runabout and touring car. It is to be known as the Atlas Automobile Company and their product will be called the Atlas car.

The American Motor Co. was recently incorporated at Eau Claire, Wis., with a capital of \$15,000, to manufacture motors. Those interested are Ralph Burdick, C. T. Bundy, Roy P. Wilcox and H. F. Johnson.

The following firms have secured the agency for the Northern cars in their respective towns: O. L. Bartlett, Palm City, Ill.; L. R. Clarkson Vehicle Co., Corpus Christi, Tex.; Nevada Mobile and Transit Co., Goldfield, Nev.

F. P. Wilcox and Geo. W. Kritler, both of Philadelphia, and Wm. L. Hurley, of Camden, N. J., have organized the Knox Motor Car Co., Camden, N. J., for the purpose of manufacturing automobiles, vehicles, electric and other motors.

The Sheldon Knitt Auto Car Co., of Tucson, Ariz., will build a garage on Mr. Sheldon's property on North Sixth avenue. It is rumored that this company has consolidated with another one and will handle a greatly increased business.

The Da-an-nite Auto Supply Co., of

New York City, was incorporated last month with a capital of \$20,000. Objects are to deal in automobiles, motor cycles, etc. The incorporators are Francis J. Wallace, Wm. H. Chase and August Lessing.

The Bristol Automobile Co. of Waterbury, Conn., have filed a certificate of incorporation. The company will manufacture, buy, sell, repair, lease and hire automobiles, automobile parts and accessories. The authorized capital stock is \$10,000.

The Dupont Garage Company was recently incorporated at Washington, D. C., to conduct an automobile garage on M street, between Twentieth and Twenty-first streets. The incorporators are Raymond A. Klock, Chas. F. Sponsler and John L. Spencer.

Dr. John A. Hawkins has sold his interest in the Hiland Automobile Company, of Pittsburg. Dr. Hawkins organized the Hiland Company and was its president since its organization, in 1904, and it is possible he will soon be found in the game again.

A correspondent in San Francisco, Cal., writes that the Royal car is growing in favor there. The Boyer Motor Car Company, the local agents there, have received a number of 1907 models and are making deliveries. The new model has a wheel base of 118 inches and is finished throughout in chrome nickel steel. It is built to accommodate seven passengers and has a tulip-patterned body.

The directors of the newly organized Riverside Auto Transfer Company, Riverside, Cal., have elected the following officers: President, L. C. Waite; vice-president, J. A. Simms; treasurer, Frank A. Miller. The company expects to open its new Glendale garage in a few weeks. This is one of the largest garage buildings in this part of the State.

Stanley L. Reed & Co. have recently opened a garage at 23-25 Westfield avenue, Elizabeth, N. J. It is 50 x 100 feet in dimensions, built of concrete block and fireproofed. All of the latest machinery has been installed, and the company carries a full line of sundries and repair parts. Mr. Reed is arranging to take the agency for several lines of automobiles and will probably also handle a foreign make of car.

The Ivel Agricultural Motor Vehicle Company of America, capitalized at \$1,000,000, filed articles of incorporation recently. The concern, which is to manu-

facture motor vehicles for agricultural purposes, has its registered office in Jersey City. The incorporators are H. P. Coughlin, F. Manz and C. L. Ratzel.

Roy E. Pardee, son of Secretary Dwight W. Pardee, of the New York Central & Hudson River Railroad lines, has entered the automobile business, having made arrangements to represent the Oldsmobile Company of New York in Brooklyn and vicinity. In order to carry out this new enterprise Mr. Pardee has established himself at 1386 Bedford avenue, where he will have on exhibition the new 1907 Oldsmobile palace touring car, in addition to an exhibit of the 1907 Oldsmobile light runabout.

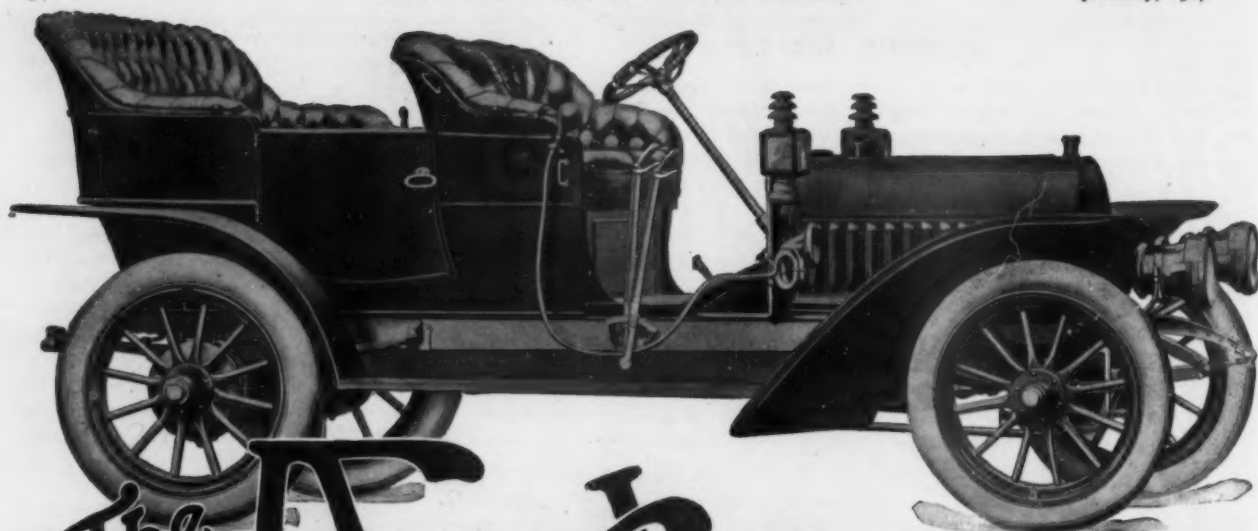
Articles of incorporation have been filed at Elizabeth at the County Clerk's office by the Dealers' Automobile and Development Company of Rahway. The company will buy, sell, manufacture and repair automobiles and road machines. The capital is \$125,000. The incorporators are Charles W. Nichols, Samuel D. Mershon, of Rahway, and Herbert H. Walker, of New York City.

The different garages of Trenton, N. J., have been recently bought and consolidated by Robert Cleveland, formerly connected with large garage concerns in the Middle West. The company has been incorporated under the name of the "Capitol City Garage Company." A messenger is stationed in each one of the largest hotels, and automobilists touring through the New Jersey capital will find excellent accommodations in the hands of this new concern.

A new automobile concern that has opened up on Boylston street, Boston, Mass., in the salesroom formerly occupied by the Bay State Automobile Co., is Coburn, Heath & Co., agents in New England for the Cameron. Mr. Coburn was formerly of the Randliff Automobile Co., and has had long experience in the business. His partner, J. K. Heath, Jr., was formerly a broker in New York.

Bellingham, Wash., Garage Notes

The enterprising manager of the Union Automobile Company of Bellingham, Washington, Mr. H. J. Crockett, has purchased Mr. W. T. Belford's interest in the above company and is now sole owner. Mr. Crockett is not willing to state the cash consideration at present. He states that the business will continue as before and will not only repair machines but will sell them as well. Manager Crockett has obtained the agencies for the "Pierce Great Arrow," "Packard," "Waterless Knox," and "Cadillac" machines for this section of the State. It is needless to say that the above makes of machines will be "pushed" in this locality.



The Autocar

Type XIV—\$3000



Watch this car. The



automobile makers of the U. S. have their eyes on it. It will pay automobile buyers to follow suit. Talk of setting new standards!—well,—we set the standard for American roads, in our 1906 Type XII last year. This year we have perfected it.

Autocar 1907 Touring Type XIV \$3000—is a value absolutely unduplicated in any other car, built anywhere, by anybody. Sounds big! Yes! And it is big—because it is true and provable.

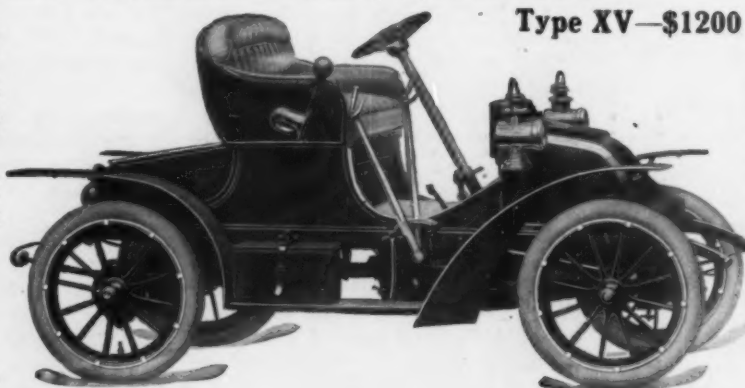
Type XIV Autocar: Four vertical cylinders. 30 horse-power. Sliding-gear, roller-bearing transmission. Direct shaft drive. Three speeds and reverse. The well known Autocar clutch. Three-point suspension of motor, fly wheel, clutch and transmission as a unit. Extra long springs. Pressed steel frame. "I"-beam front axle. Autocar Control—spark and throttle controlled by grips in steering wheel.

The Autocar will be exhibited in New York at the Madison Square Garden Show, Space 24, January 12 to 19, 1907

AUTOCARS are sold with standard warranty of the N. A. A. M.

Write for 1907 literature.

Limousine and Landulet for immediate delivery.



Type XV—\$1200

Type XV—\$1200. The most highly developed motor-car in the world. The absolute standard in runabouts. Two horizontal-opposed cylinders: 12-14 h.p. Motor under hood. Direct shaft drive. Sliding gear transmission. Three speeds and reverse

The Autocar Company Member Association Licensed Automobile M'rs, Ninth St., Ardmore, Pa.

Reliability

The Corbin Motor Vehicle Corporation have recently announced two important agency appointments.

H. J. Koehler Sporting Goods Co., of Newark, N. J., is the first of these. Mr. Koehler is well known in automobile racing circles, and maintains a larger garage business than any other one man in this country. He has obtained the agency for Essex County and Middle New Jersey.

The other appointment is Henry A. Rowan, Jr., & Co., of Philadelphia, the proprietors of the Aldine Garage. They have devoted their entire attention heretofore to the garage business, and are well known there as having an extensive and very select class of patronage.

NEW DETROIT GARAGE.

William J. Roepke, for the past two years manager of the Reo agency in Detroit, and H. D. Keller, president of the Northern Foundry and Supply Co., have entered into partnership and are to build an extensive garage on Woodward avenue, between Hendrie and Medbury. The garage is to be one-story. The building will be 72 feet wide by 210 feet in length, with cement floors. Objectionable pillars will be eliminated by the agency of truss work, which will not only afford more room for storage but also permit free entrance and egress.

Elaborate offices, including parlor, private office, ladies dressing room and wash room, have been provided. The regular storage room will be 48 x 157 and will be accessible from the main entrance. The garage will have all the modern equipment for the care of gasoline and electric cars, and there will be room for 75 machines.

Messrs. Keller and Roepke will be partners in the garage affairs. Mr. Keller is erecting the building, and Mr. Roepke will act as general manager of their business after they are ready for patronage.

The following firms have secured the agency for the Thomas "Flyer" and the Thomas "Forty" for the season 1907 in their respective towns:

The Harry Fosdick Co., 53 Stanhope street, Boston, Mass.

Kirk Bros. Automobile Co., 713 Jefferson avenue, Toledo, O.

Utica Motor Car Co., 333 Bleeker street, Utica, N. Y.

Wm. A. Maynard, University Garage, New Haven, Conn.

S. R. Dresser, Bradford, Pa.

W. F. Harrison Auto Co., Birmingham, Ala.

J. A. Dowling, 22-30 Forest avenue, Portland, Me.

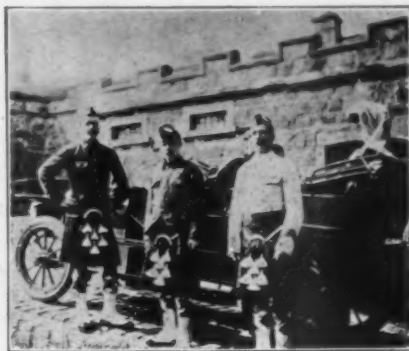
Zerbel & Mulkern, 225 Grand avenue, Milwaukee, Wis.

Chas. E. Whitten, 40 Central avenue, Lynn, Mass.

Motor Car Co., Washington, D. C.
H. L. Keats Auto Co., 80 Seventh street, Portland, Ore.

VISITING STIRLING CASTLE.

The car belonging to a party of automobilists is shown, who by the power of assurance forced their way into Stirling Castle, one of the old strongholds of Scotland. The castle is always guarded by a detachment of soldiers, generally Highlanders, and three of them have in this case been induced to pose beside the automobile.



COURTYARD OF STIRLING CASTLE.

Nearly four hundred years earlier another votary of strange locomotion worked his way into Stirling Castle and offered to entertain King James and his court by flying from the top of Stirling Castle. He was permitted to try, and his flying machine made a start, but hesitated and was lost. The interprising flyer landed on the rocks beneath with a broken leg.

H. W. Terriere has established a Chicago branch of the Ajax-Grieb Rubber Company at 1461 Michigan avenue, as headquarters for the Ajax tires.

The Stewart & Clark Mfg. Co. have purchased the assets, good-will and patents of the Sterk Mfg. Co., of Chicago, and will continue the manufacture of the Long Distance Siren. They will shortly put on the market the Stewart Speed Indicator and Mileage Recorder. After January 1st the company expect to move into their new shop, 502-504 Diversey Boulevard.

The Autocar Company, of Ardmore, Pa., have secured a permanent home in New York at Broadway and 80th street. Arrangements have been completed with Furman & Furman, of New York, to open an elegant and new salesroom in the new Autocar quarters. The salesroom will occupy 27 ft. on Broadway and 100 ft. on 80th street, and the entire basement will be devoted to a repair department,

and will be one of the best equipped in the city. Arthur Norton, who has long been identified with the factory at Ardmore, will be in charge of all repair work. A large and complete assortment of all repair parts will be carried in stock.

Alex. E. Pastre's auto garage, at Ocean Parkway and Sherman street, Brooklyn, N. Y., are making great preparations for 1907 business. They have taken the agency for the Rambler and National automobiles, which will supply the most fastidious and painstaking purchasers.

Their garage and storing facilities for the coming year have been greatly improved and they have now one of the most complete machine shops and electric charging plants in their section, and always keep mechanics on hand, night and day, for any kind of repairing.

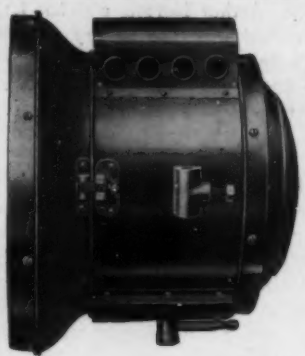
The garage being most conveniently located at the Park Circle and Ocean Parkway, is one of the best situated for demonstrating and learning to operate cars in Brooklyn.

Witherspoon Jeffords, who now conducts an automobile storing and repairing establishment at 424 King street, Charleston, S. C., will remove to Nos. 58 and 60 Queen street early in January, where a new and up-to-date garage will be erected. The new garage will have a floor area of 223 feet by 63 feet, and will be equipped with all the late improvements for the comfort and convenience of the owners of automobiles.

The new establishment will be divided into three departments. One will handle bicycles, the other automobiles and the third department will consist of a bicycle and automobile repair shop.

Mr. Jeffords represents the Maxwell-Briscoe Motor Co., and has sold a number of cars, and expects two carloads of machines in the early spring.

The Boston branch of the H. W. Johns-Manville Co. moved early last month into new building at Nos. 55-57-59 High street, Boston. This entire building, which comprises seven floors, will be occupied by the offices, sales and shipping rooms of the company, and will provide every facility for doing business comfortably, conveniently and promptly. Telephones connect with every division of the establishment and pneumatic tubes for prompt delivery of orders to the shipping room, etc., have been installed. The increase of space provided will enable the company to carry a much larger stock on hand than ever before and thus meet the steadily increasing demand in the city and vicinity of Boston, and the New England States, for the various products of the company.



MORE SOLAR LAMPS AND GENERATORS

ARE USED ALL THE TIME
THAN
ALL OTHER KINDS SOME OF THE TIME

Just compare any part from the hinge on the door to the reflector or lens with a like part of any other make and you will understand the reason for this.

They really are the best built and made by the oldest and largest lamp and generator makers in the world.

Sounds big? Perhaps, but it's Honest—like the quality.

A careful comparison of Solars with all others will insure Lamp Satisfaction to you and the order to

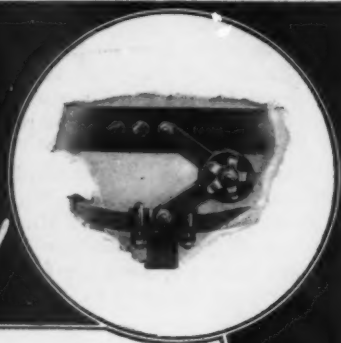
BADGER BRASS MFG. CO.

KENOSHA, WIS.

EASTERN BRANCH, 11th AVE., 36th & 37th ST., NEW YORK CITY



*Owners!
Chauffeurs!
Manufacturers!*



YOUR 1907 CAR WILL NOT BE COMPLETE UNLESS
IT IS EQUIPPED WITH

Truffault-Hartford

THE PIONEER SHOCK ABSORBERS THE BEST

Adopted by Pierce Great Arrow, Locomobile, Studebaker, Peugeot, Brasier, Matheson, Stevens-Duryea, Gobron-Brillie, Rossel, Napier, Aerocar and Watson-Conover.

Cars Under 1500 lbs., \$40
(Four Suspensions)

ABSOLUTELY GUARANTEED

Cars Over 1500 lbs., \$60
(Four Suspensions)

APPLICATIONS MADE AT GARAGE, 212-214 W. 88th ST., NEW YORK.

HARTFORD SUSPENSION COMPANY

E. V. HARTFORD, President

Postal us for particulars

67 VESTRY ST., NEW YORK

EXHIBIT AT A. C. A. AUTOMOBILE SHOW, DECEMBER 1 to 8, GRAND CENTRAL PALACE, NEW YORK, SECTION O.

GOVERNMENT GARAGE.

Arrangements are completed for the establishment of a Government garage in New York City at the corner of Christopher and Barrow streets. Plans have been drawn up for adapting the ground floor to automobile purposes. The increase during the past year in the number of imported automobiles has increased nearly 50 per cent. At the close of the year about 1,300 cars have been passed through the custom house. In 1905 there were 840 cars.

In the Appraiser's warehouse there has frequently been as many as 20 cars awaiting examination at one time, and each requires considerable room to examine properly. A special automobile department is absolutely necessary. It may be stated that the value of the cars imported during the year amounted to nearly \$5,000,000. This was the foreign valuation of the cars. Forty-five per cent. is added to this by the custom house authorities. It is estimated that over 1,500 automobiles will be imported next year.

SEATTLE.—The Pacific Coast Automobile Company has broken ground for what will be one of the finest garages in the Northwest, at 1414 Broadway. The foundation is for a six-story building, two stories and basement which will be completed this year. The first floor is to be reinforced concrete, making it absolutely fireproof. A 4,000-pound hydraulic elevator will be installed to facilitate the handling of cars.

The intention of the company is to make the garage complete and systematic in every way. On the first floor will be located the offices and a retiring room for ladies. There will also be a room for men, with lockers. The repair shop will be on the second floor and will be fully equipped.

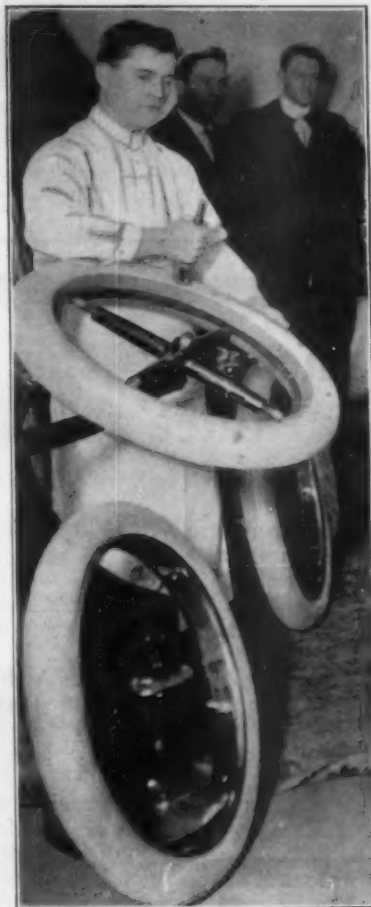
The company is capitalized at \$25,000. E. P. Gaffney is president; V. C. Bigelow, vice-president, and George B. Lamping, secretary and treasurer. Associated with the company as salesman is Chester Coulter, formerly with the Northwest Motor Company. The company has the agency for Pope-Toledo, Thomas Flyer, Detroit Thomas, Oldsmobile, Buick, Pope-Waverly Electric, and a commercial line.

GYLLSTROM.

Making Rubber Tires

One of the most interesting exhibits at the Automobile Club's show was the tire making section conducted by the Ajax-Grieb Rubber Co. A layer of Sea Island cotton woven into a fine fabric and frictioned with rubber so that every pore of the fabric is filled with rubber, is wrapped on a heavy solid iron core, and on this is wrapped a ply of the finest Para rubber. Alternate layers of fabric and rubber are placed in position and stretched

carefully by hand. There are six layers. Then the bead is attached, the part fitting on the rim of the wheel, and which is made of hard, seasoned rubber. Then three other plies of rubber and fabric are added. The cushion and facing are then attached and on top of this the tread, and this is a very heavy stock of rubber



MAKING AUTO TIRES AT THE SHOW.

calculated to withstand the heaviest service. The tire is then put into a mould and submitted to great pressure when the vulcanization takes place.

Using Corn as Fuel

When the making of denatured alcohol becomes common in the corn raising districts the suffering from want of fuel which has been so common in the treeless West this winter will not be repeated. Many bushels of corn have been burned this winter in place of coal, which is a dreadfully wasteful way of generating heat. Alcohol stoves is a much better form of heating drawn from the products of the soil, and that will be a very common method in the near future.

Corn can be used as a substitute coal, but it is a very expensive fuel when burned in a furnace. A case happened a

few years ago when a locomotive became stalled in a deep snowfall in Dakota. The engineer considered it his duty to keep the engine "alive," no matter what the cost might be, so he invited the farmers in the neighborhood to bring him their corn. They did. With a big fire of corn in the furnace and water made from snow shoveled into the tank he kept her roaring hot for a week. It took \$600 to settle the bills of the farmers, and some of them are still joking over the easy market they had for corn that winter.

When the engineer got to headquarters he was appalled by the information that he would have to pay for the corn. After keeping the man in a nervous stew for a month the superintendent intimated that the company had decided to pay the corn bills. While acknowledging the corn—that they had in their employ one idiot posing as an engineer.

Colonel Pope Scores a Victory

During the day when bicycling was in its prime the impositions of the express companies became strongly apparent through the users of wheels having to order small parts sent by express. The inequity of exorbitant charges caused innumerable protests, but no remedies, and Colonel Albert Pope, of the Pope Manufacturing Company, instituted a crusade against the habitual injustice of the express companies and demanding a parcels post to be operated in connection with the Post Office Department of the Government. Nothing came directly, but Colonel Pope has maintained a crusade of education which has found many converts to his views. The express companies are so powerfully represented in Congress that attacks struck almost harmlessly, but they wounded and people listened.

In his last annual report Postmaster-General Cortelyou recommended Congress to establish a parcels post, which indicates great moral progress. The parcels post is not arrived yet, but it is coming. When it does come people ought to give Colonel Pope credit for the great work he did in bringing about the much-desired reform.

The Autocoil Company of Jersey City have secured the entire ignition contract from the Autocar Company of Ardmore, Pa., and they will use their four-cylinder and two-cylinder coils on their 1907 product. The Autocoil Company feel gratified to receive this contract for reason that The Autocar Company is one of the pioneers in the automobile business and the contract was only awarded after their coil was in competition with several other high class makes and after the most rigid tests. Our readers looking for a reliable autocoil will be safe with this one.

The
60 H. P.
Thomas
Flyer
\$4,000.00
f.o.b. Factory



Thomas
40 H. P.
\$2,750.00
f.o.b. Factory

The Performances of the Past are the Surest Guarantee for the Future

Personally you don't care for excessive speed. What you want to know is: "How does the Thomas behave in the hands of other owners?"

More than a thousand Thomas owners answer that question for you. They speak up from every State and section of the country and say:

"The most perfect car in America."

That satisfies you. You say to yourself: "If a thousand American business men of a thousand varying tastes have found it the best car under a thousand different conditions—the Thomas is the car I want."

But there's another, and, if anything, a better test. Added to the everyday performances of the Thomas in the hands of a thousand owners is the most remarkable series of records *ever made in one season by any one car.*

Indeed, it's doubtful if any other car in its whole life ever made such a significant showing.

Not because the Thomas made a certain phenomenal time. Not because it broke certain important world's records. Not because it proved itself American champion in the Vanderbilt Cup. Not merely because of the perfect score in the Glidden tour.

No—but because of the structural strength and mechanical perfection that made these performances possible. No car can be called right; no car can be called sound; no car can be pronounced dependable *for your every day performances*—until it has gone through the killing road, speed and endurance travels in which the Thomas was so marvelously successful this season.

The Thomas won because it is the product of the largest and most experienced corps of domestic and foreign engineers and designers in the world—because more money has been spent in bringing it to perfection than on any other car in the world.

That is why it is important to you to know what the Thomas has done in 1906—as a certain forecast of what it will do for you and every other Thomas owner in 1907.

Perfect score in Glidden Tour and return to Buffalo.
Three perfect scores (all Thomas cars entered) in Chicago-Elgin-Aurora endurance contest.
Road record, Buffalo to Rochester, 68 miles—1 hour, 32 minutes and 45 seconds.
Hill climbing record of California-Pasadena-Altadena course.
Stock touring car record of 5 miles, standing start, in 4.55; 1 mile in 57.25 seconds at Atlantic Beach.
One mile, 55.45 seconds, Atlantic City. First and second in one minute class, Atlantic City.
First in \$4,000 and \$5,000 touring car championship classes, Atlantic City.
50-mile world's record for stock touring cars, on track, 1.03.19¾, Philadelphia.

25-mile world's record, stock touring cars, St. Louis, 34.36.
50-mile stock touring car record, Hawthorne track, Chicago, 1.06.10.
50-mile Pimlico track, Baltimore, 1.06.36.
Record, Philadelphia to Atlantic City, 60 miles—50 minutes.
Record, Philadelphia to Reading, 61 miles—2 hours.
Record, Philadelphia to Wilkes-Barre, 146 miles—6 hours, 30 minutes.
Record, Cape May to Philadelphia, 93 miles—2 hours, 45 minutes.
One-mile Price handicap, Atlantic City, Thomas from scratch—1.21.2-5.

THE E. R. THOMAS MOTOR COMPANY

1421 Niagara Street, BUFFALO, N. Y.

Members Association Licensed Automobile Manufacturers

We shall exhibit only at the National Automobile Show at Madison Square Garden, January 12-19, 1907

The New Gabriel Horn for 1907

When Mr. C. H. Foster, of the Gabriel Horn Mfg. Co., two years ago invented and placed upon the market the Gabriel horn it was thought that the very acme of excellence in automobile horns had been reached.

The horn was forthwith adopted by up-to-date motorists and its sweet, harmonious tones have come to be known wherever the motor car is used, all over the world.

The sales of the Gabriel have been enormous, and while many manufacturers



HORN READY FOR USE.

would have been elated over such success and inclined to "let well enough alone," Mr. Foster has been busily employing his ingenuity in the effort to improve upon a horn which users already regarded as perfect.

The result of his labors is to be found in the new 1907 Gabriel, which embodies all the good features of the former model, with some improvements which tend to further increase its popularity.

As will be observed from the illustration the new horn is made with but one tube instead of two, three or four as in the 1906 pattern, and with three tones only.

The tube of the new Gabriel is divided into three chambers, each producing a separate and distinct tone, which blend into one harmonious blast, soft and sweet or loud and far reaching as desired, but always instantly recognized as a Gabriel signal.

In the old pattern of Gabriel horn each tube received its proportion of exhaust gas pressure direct. In the 1907 type the exhaust gas is received in one large expansion reservoir and is distributed evenly to the three separate chambers. This makes possible a much greater volume of sound and increased ability to carry the tone to a great distance. It also causes a more perfect blending of the tone and at the same time enables the operator to maintain a sweet mellow tone as long as desired.

Owing to the use of but one tube the new Gabriel horn occupies only about one-third the space of the former model and may be placed in any desired position, on or under the body of the car.

It is so made that it may be readily taken apart in a few moments and all carbon and dirt easily removed. This is a decided advantage as it makes it possible always to have a horn which is in most perfect working order.

The Gabriel horn has no reeds, bulbs or tubes to break or get out of order and cause annoyance. Its operation is ex-

remely simple and it may be applied to any make of gasoline or steam car.

The new Gabriel is made in four sizes, as shown in their advertisement which appears on another page in this issue.

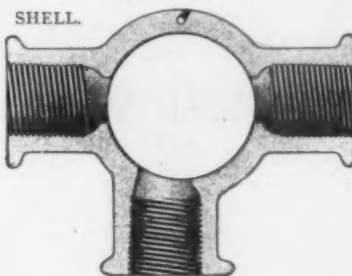
Besides the improvement in the horn itself, Mr. Foster has materially bettered the valve which is used with it.

The new valve has about one-half the cylinder bearing surface of the 1906 pattern, thus greatly decreasing the possibility of the accumulation of carbon.

The cylinder is made with sharp cutting edges so that every time the horn is operated the valve automatically shears away any carbon deposit and keeps itself clean and in perfect working order.

The new valve and all necessary fittings for attaching are included with the purchase of every Gabriel horn at list prices.

VALVE CUT.



TAKEN APART FOR CLEANING.

A new cut-out valve is being put upon the market by the Gabriel people, who claim for it a decided advantage because of the fact that all three openings are of the same size, permitting the free and unobstructed escape of exhaust gases, thus eliminating the objectionable features found in former types of cutout valves.

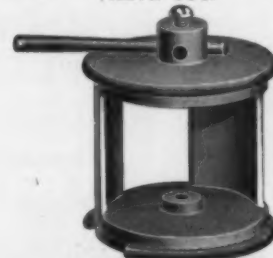
The Gabriel Horn Mfg. Co., will continue to manufacture the Foster Shock Brake, which they inform us has met with ready adoption by the automobile public and has proven successful in every instance when properly applied.

This Brake consists of a small light cylinder made from cold drawn steel, with a piston or plunger which is attached to the frame. The lower portion of the cylinder is filled with oil. The plunger head containing the valve disc is pierced with eight small holes, so that when it comes in contact with the oil from sudden compression of passage of the spring, the oil is forced through these holes into the upper chamber, the slow passage of the oil making it impossible for the machine to receive a quick, severe shock. Upon the recoil, the oil having been forced into

the upper chamber acts as a cushion and the plunger returns with a slow, steady pull which prevents the jar and shock always occasioned by a sudden bump. The oil flows slowly back into the lower chamber and is again ready to relieve the machine from the next bump with which it meets.

The principle is pronounced mechanically correct by experts, and the manu-

VALVE CUT.



CYLINDER.

facturers inform us that in actual operation the Shock Brake will do all and more than is claimed for it in the way of preventing discomfort to the occupants of the automobile and eliminating the possibility of broken springs and disarranged machinery.

The Foster Shock Brake is light, compact and substantial. It weighs but 2½ pounds, is adjustable in every direction and is adapted for use in any machine.

The Misleading Directory

People who depend upon directories for addresses of individuals they wish to reach, make use of a very poor medium, for a large percentage of the addresses are wrong from the day they were printed.

Recently a canvas of New York City alone showed that out of some 10,000 addresses fully 1,000 were wrong, which means that they were only temporary residents of New York when they took out their license as automobilists. That means quite a loss in stamps and literature, as letters are oftentimes used by automobile concerns and others in trying to reach automobilists direct by letter.

Much money is lost in an advertising way in trying to reach the address of automobilists, as the regular registered list of addresses supplied by States are far from correct.

Coburn & Beldon, of 577 Central avenue, Newark, N. J., a pair of very energetic and capable automobile garage operators, have taken the agency for the New Jersey Rainier car. That excellent car will soon become better known in New Jersey under the push of Messrs. Coburn & Beldon.

The Imperial canal of China has a total length of 2,100 miles, which exceeds that of any other in the world.

MATHESON

ANNOUNCEMENT

A cordial invitation is extended to the PUBLIC and the TRADE to call and inspect our 1907 motor cars

LICENSED UNDER SELDEN PATENT

PRICES:

Runabout body, 35-H. P., \$4,250; 50-H. P., \$5,000	Landulet body, 35-H. P., \$5,500; 50-H. P., \$6,500
Touring " 35-H. P., 4,500; 50-H. P., 5,500	Limousine " 35-H. P., 5,500; 50-H. P., 6,500
Touring body, 60-H. P., \$7,000.	

The Matheson Company of New York

1619-1621-1623 BROADWAY

AGENCIES:

THE MATHESON COMPANY OF BOSTON, 92 Massachusetts Avenue, Boston, Mass.
ALBANY GARAGE CO., 28-30 Howard Street, Albany, N. Y.
ROCHESTER AUTOMOBILE CO., 150-170 South Avenue, Rochester, N. Y.

WATERTOWN AUTOMOBILE AND SUPPLY CO., Watertown, N. Y.
PASSAIC MOTOR CAR CO., 147-151 Main Avenue, Passaic, N. J.
TITMAN & LEEDS, Broad and Cherry Streets, Philadelphia, Pa.
THE MATHESON COMPANY OF NEW YORK, Western Agency, 1321 Michigan Avenue, Chicago, Ill.

SPLITDORF COILS

GIVE

HOTTER

SPARKS

WITH

LESS

CURRENT

Many visitors at our booth at the Grand Central Palace Auto Show were surprised at the small amount of current used by the **SPLITDORF COIL** in producing such large, hot, power-giving sparks.

Automobiles equipped with **SPLITDORF IGNITION APPARATUS** are bound to get every ounce of power there is in the engine.

Ask Depts. for Catalog
Madison Square Garden Show,
Space 49, Balcony

C. F. SPLITDORF

17-27 Vandewater St.

New York

Uptown Branch: - 1679 Broadway



The Diezemann Shock Absorber

The Diezemann is the only shock absorber made embodying the necessary self-lubricating feature and whose frictional surfaces are absolutely dust and dirt proof.

As lubrication is essential to any frictional device, the Diezemann is therefore the only practical absorber on the market to-day and when once properly adjusted needs no further regulation.

We exhibit at Madison Square Garden,
January 12th to 19th, 1907. . . .

Diezemann Shock Absorber

1308 Hudson Street, Hoboken, N. J.

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"No truer words were ever spoken than these—'A fool and his money are soon parted,'" said the lecturer. "That's so," said a voice from the rear of the hall; "we all paid sixpence each to get in here!"

Every jockey likes to teach his horse a few tricks, every owner drills his dog to perform, most mothers are fond of entertaining friends with the baby's cute-

ness, and even motorists want their cars to do "stunts." One of the latest was recently required of the new Model "F," forty, water-cooled Aerocar.

A party of agents just wanted to "see what she would do," so stopped the car halfway up a steep hill. Each seat was filled by a person who had always received a goodly supply of earth's viands, and had thrived unusually well on the forage, making an extra heavy load. Leaving the lever in the high gear, the clutch was again let in and the car gradually started up the grade, but with a constantly increasing speed until the top of the hill was reached.

guished. Their motor oil and acetylene lamps are bright and beautiful, and are entirely free from smoke, disagreeable odor and flickering. An application of a cold blast whereby the flame is supplied with an abundant amount of fresh air gives a pure white flame of surpassing brilliance the splendor of which is unwavering. A finely illustrated catalogue giving full details of their work has just been issued and all interested should send for a copy to the Dietz Company of New York.

On December 1 the Buick Company moved into their new plant at Flint, Mich., and will manufacture a large line



ORIENT BUCKBOARD, 1907 MODEL.

The Orient Buckboard

The buckboard automobile has been brought into use through the desire to furnish a cheap runabout car to people who could not afford to pay for an ordinary runabout. The Orient Buckboard here illustrated sells for \$400 and appears to be a very well made vehicle. The air cooled engine, developing about 4 H. P., is located in the rear and transmits its power through a friction disk. This makes an unusually simple arrangement. This car is a famous hill climber and better than that is a reliable roadster that takes its load to the destination without fail. It is made by the Waltham Mfg. Company, of Waltham, Mass., who will send more profuse particulars about the vehicle to any one who makes application for the same.

The Dietz Motor Lamps

Whatever controversy there might still be going on about some of the accessories of the automobile, there is only one opinion about motor lamps. The R. E. Dietz Company has carried the manufacture of lamps and lanterns to perfection. They are not only the largest manufacturers of their specialties in the world, but they are in many instances the inventors of the features whereby all good lamps are distin-

of 2 cylinder cars. The new building on a 14 acre lot will be equipped with the most modern machinery.

The rarest and most costly of gems, though not perhaps the most beautiful, are pigeon's blood rubies, fine opals, and diamonds that are pure but with a distinct glow of blue or pink.

Truth is sometimes told unwittingly. When, in the course of an impassioned letter defending the automobile and all its ways, a correspondent concluded with the words, "the motor car has come to stay," the printer made it read "come to slay."

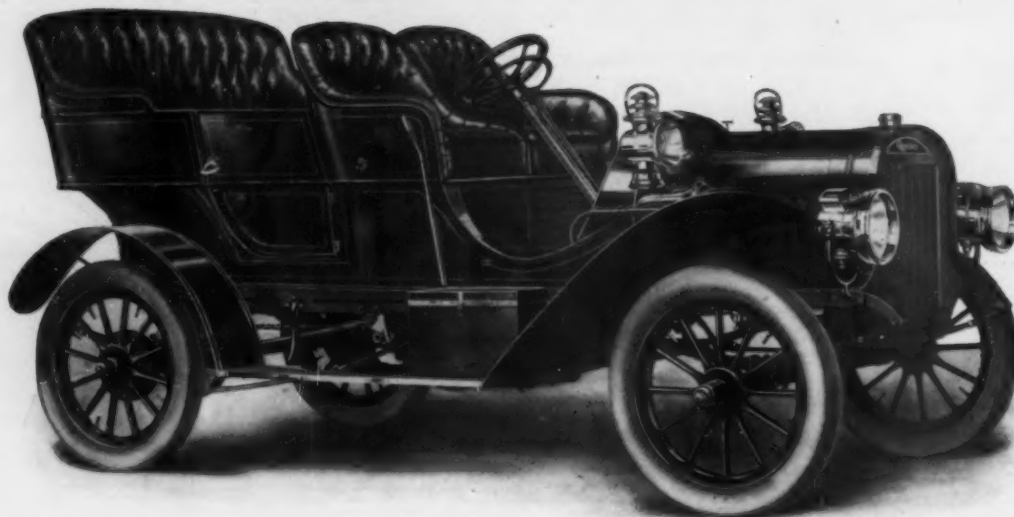
Be Independent

Jilson—I've got some money that isn't workin'—guess I'll increase my life insurance.

Jobson—Don't do it, my boy. Get an automobile—go to Europe—blow your own money.—Cleveland Hotel Life.

The term "spick and span" was derived from the practice of stretching a new piece of cloth on spikes (hooks) and spans (stretchers) in order to stretch it evenly.

Rambler



Model 21, Price \$1,350.

The Most Efficient Car of Its Type Ever Built

The Rambler Model 21—the logical result of seven years of scientific development of the simple power plant.

In this car a double opposed motor, multiple disc clutch and planetary transmission are entirely enclosed as an integral unit with three-point support.

Accessibility is carried to a point never before acquired—the tilting body and constructive design enables every working part to be easily and entirely reached from above.

Write today for our catalogue describing this, our new runabout and two four-cylinder touring cars. It will give you information you ought to have before buying a car.

Main Office and Factory, Kenosha, Wisconsin, U. S. A.

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SAN FRANCISCO

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Thomas B. Jeffery & Company

14,000 NAMES OF THE BEST CLASS OF PEOPLE \$1.00

Automobile License Directory of Pennsylvania Contains

NUMBERS, NAMES AND ADDRESSES,
ALPHABETICAL LIST OF NAMES, and
LAWS OF PENNSYLVANIA PERTAINING TO MOTOR VEHICLES

The Pennsylvania Motor-Vehicle Register,

Published monthly, beginning February 1st, 1907, will contain

LIST OF NEW LICENSES OF PENNSYLVANIA,
LAWS, ORDINANCES, and
INTERESTING TOURS OF PENNSYLVANIA.

A valuable publication to all Autoists, Drivers, Cyclers, Garages, Dealers and Manufacturers

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THE REGISTER PUBLISHING CO.,
3606 Hamilton St., Philadelphia, Pa.

Date.....

Please enter my subscription to The Motor Vehicle Register, beginning February, 1907, for which I enclose

\$5.00 for one year or

\$2.50 for six months.

Name.....

Address.....

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The most instructive and entertaining periodical of its kind published

AND

KRAUZ'S COMPLETE AUTOMOBILE RECORD

A popular and handsome volume designed to furnish the autoist with a complete record of expenditures and other information that will interest every motorist. The book is album shape, 144 pages, bound in cloth, attractive cover design in colors, absolutely given free to every Subscriber for one year to the

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Krauz's Complete Automobile Record, bound in red morocco\$1.50

Krauz's A B C of Motoring, bound in cloth\$1.50

Krauz's A B C of Motoring, bound in red morocco\$2.00

Address **AUTOMOBILE MAGAZINE** -- 136 Liberty St., New York

"Keep Your Eye on Continentals!"

Continental TIRES

At Grand Central Palace Show -- -- New York City

FIRST

in number, on foreign cars.

Second in number, on all cars exhibited



CONTINENTAL CAOUTCHOUC COMPANY

J. M. GILBERT, General Manager

43 WARREN ST., NEW YORK

REPRESENTATION EVERYWHERE

Gabriel

"The Musical Horn"

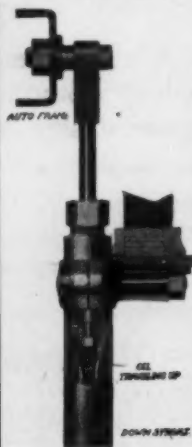
FOR 1907

The little cut on the left shows the new Gabriel Horn for 1907. You see, it is made with one tube only, yet it still gives three sweet and distinct tones as before. The one tube makes it possible to locate the horn on the side

or under the car, and thus saves room.

The little cut on the right shows how easily the new model can be taken apart and cleaned. Then, we have a new valve on the horn so that it automatically clears itself of all carbon deposits. The Gabriel Horn this year is one of the accessories that you should treat yourself to, because it's the best horn—the distinctive horn—the practical horn.

Write us about it. We will send our booklet FREE.



GABRIEL HORN MFG. CO.
983 Hamilton Ave., N. E., Cleveland, O., U. S. A.

Aerocar

"Built for Service"

and only \$2,000

The man who has waited for automobiles to get cheaper, need wait no longer. Here is his machine. A rich man's car at a poor man's price. A high grade Touring Car.

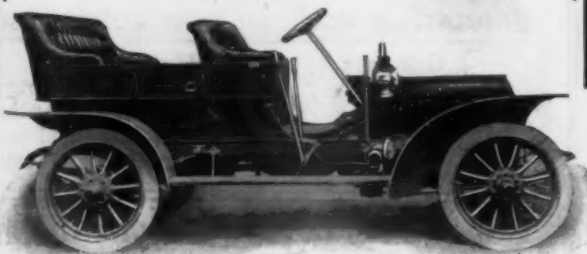
This Model D Aerocar has a four-cylinder, air-cooled 20 horsepower motor and a wheelbase of 104 inches. The tires are 3½ x 32 inch, making the upkeep small. It is a car you can drive and care for yourself—one that costs but little to buy and little to operate.

If you want a water-cooled car, and want the best—write about our Model F 40-horsepower, water-cooled Aerocar at \$2,750.

The Aerocar Company

Detroit, Mich., U.S.A. N. Y. Branch, Broadway and 73d St.

Member A. M. C. M. A.



1907 CADILLACS

The 1907 line of Cadillac Motor Cars is the largest and most complete in the world, consisting of nine models as follows:

MODELS K AND M

10 H. P. SINGLE CYLINDER

The world famous single cylinder Cadillac which was the first to demonstrate that a thoroughly practical, serviceable, dependable and economical motor car was a possibility, and whose prestige is growing every day, will be made in five types, viz.:

Model "K" Runabout	\$800.00
Model "M" Light Touring Car	950.00
Model "M" with Folding Tonneau	1,000.00
Model "M" Coupe	1,200.00
Model "M" Light Delivery Wagon	950.00

MODEL G

20 H. P. FOUR CYLINDER

The "Model G" is offered to meet the constantly increasing demand, especially amongst Cadillac enthusiasts, for a thoroughly high grade, medium powered, medium sized four cylinder car of Cadillac quality, but at a somewhat lower price than the large touring cars.

This model is a 20 H. P. four cylinder 4"x 4½", water cooled, copper jacketed cylinders; inlet and exhaust valves interchangeable and operated by a single cam shaft. It is equipped with the Cadillac automatic ring type governor which regulates and "steadies" the speed of the car under all road conditions regardless of grades.

The transmission is the selective type of sliding gear, possessing several features distinctly its own. Three speeds forward and reverse. Direct drive on high speed with no gears running or in mesh. Specially cut and hardened gears. Pressed steel frame. Internal and external double acting brakes on rear wheel hub drums. Wheel Base, 100 inches. Tread, 56 inches. Tires, 32 x 3½.

Price with either Touring or Runabout Body, F. O. B. Detroit, \$2,000.00.

MODEL H

30 H. P. FOUR CYLINDER

The 1907 Model H has been on the market for some months past and its large sales among critical buyers is evidence of the popularity it has attained.

This model is a 30 H. P. four cylinder, 4¾" x 5", water cooled, copper jacketed cylinders. Inlet and exhaust valves interchangeable and operated by a single cam shaft. The governor is the Cadillac Automatic ring type, same as above.

Transmission is the Cadillac planetary type which has given such universal satisfaction. Three speeds forward and reverse.

Pressed steel frame. Internal and external double acting brakes on rear wheel hub drums. Wheel Base, 102 inches. Tread, 56 inches. Tires, 32 x 4.

Price f. o. b. Detroit \$2,500.00

Model H. Limousine with 34 x 4½ tires f. o. b. Detroit 3,600.00

Cadillacs will be exhibited in New York at Madison Square Garden, February 12-19.

CADILLAC MOTOR CAR CO.

DETROIT, MICH.

Member Association Licensed Automobile Mfrs.

The Stearns

Proved best in '06
See our Records
and Improved for '07
See the Car

The ball-bearing engine, the superior connecting shaft, the safest steering gear in the world, the unmatched material and workmanship that make the Stearns "The Best Automobile," are described in the advance booklet for '07, sent free. Write to-day to

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Co.

Cincinnati, Hughes Automobile Co., 608 Broad-
way.
St. Louis, Reyburn Motor Car Co., 5023 Del-
mar Boulevard.
Atlanta, Ga., Capital City Automobile Co.
Chicago, Githens Bros. Co., 1328 Michigan
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Apartments**

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\$1.50 PER DAY AND UP

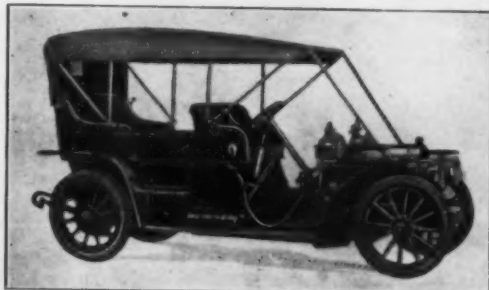
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the same as A GOOD DIAMOND**



QUALITY RULES

NO IMPERFECTIONS

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BEAUTIFIES EVERY CAR**

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& UPHOLSTERING CO.**

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SPRINGFIELD, MASS.

Address name in full when writing



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MOBIL OIL**

comes in barrels and cans of varying capacities. Sold by dealers everywhere. Send for booklet which lists every make of automobile and tells what grade of Mobiloil to use with each one. It's free. Mobiloil is manufactured by
VACUUM OIL CO., Rochester, N. Y.

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in the Old Country 'specially Scotland

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is Smart, Up to Date and Profusely Illustrated

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in the Trade and Sport. To be well informed on progress in Scotland, England and Ireland read The Motor World

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HAY, NISBET & CO., Limited

73 Dunlop Street,

GLASGOW, SCOTLAND

The Springfield Motometer IS THE EASIEST



of all instruments to Read from the Seat because the Pointer takes its place on the dial and remains perfectly steady.

It instantly shows the slightest increase or decrease of speed, but neither swings nor dances around the point it is indicating, for the reason that it is directly connected to

A GOVERNOR THAT GOVERNS

It must move exactly as the governor moves.

It is accurate and reliable because correctly constructed.

Every motion is balanced.

All working parts are of steel with hardened self-lubricating bearings.

A fine piece of mechanism which meets the approval of the mechanical experts.

It is covered by a business-like guarantee.

The Price is Right—Fair To Us, Fair To You

You can put in more money, but you can't buy better service.

For any sized wheel and fittings for any car.
50 Mile Instrument, combining Trip and Season Odometer, \$45.00.

60 Mile Instrument, combining Trip and Season Odometer, \$50.00.

Either size, without Odometer \$10.00 less.

WE CAN NOW MAKE IMMEDIATE DELIVERIES

**The R. H. Smith
Manufacturing Company**

Patentees and Manufacturers
SPRINGFIELD, MASS.
Est. 1865. Inc. 1883

1907 POPE TOLEDO

The Invincible Chrome Nickel Steel Car

Type XV easily the peer of any car built in America and assuredly the equal of the best cars produced abroad.

Perfect construction, comfortable riding qualities, speed, and the highest possible grade of materials including Chrome Nickel Steel transmission, gear shafts and axles, enter into its construction. Genuine Deutsche Waffer Fabrik ball bearings are used throughout.

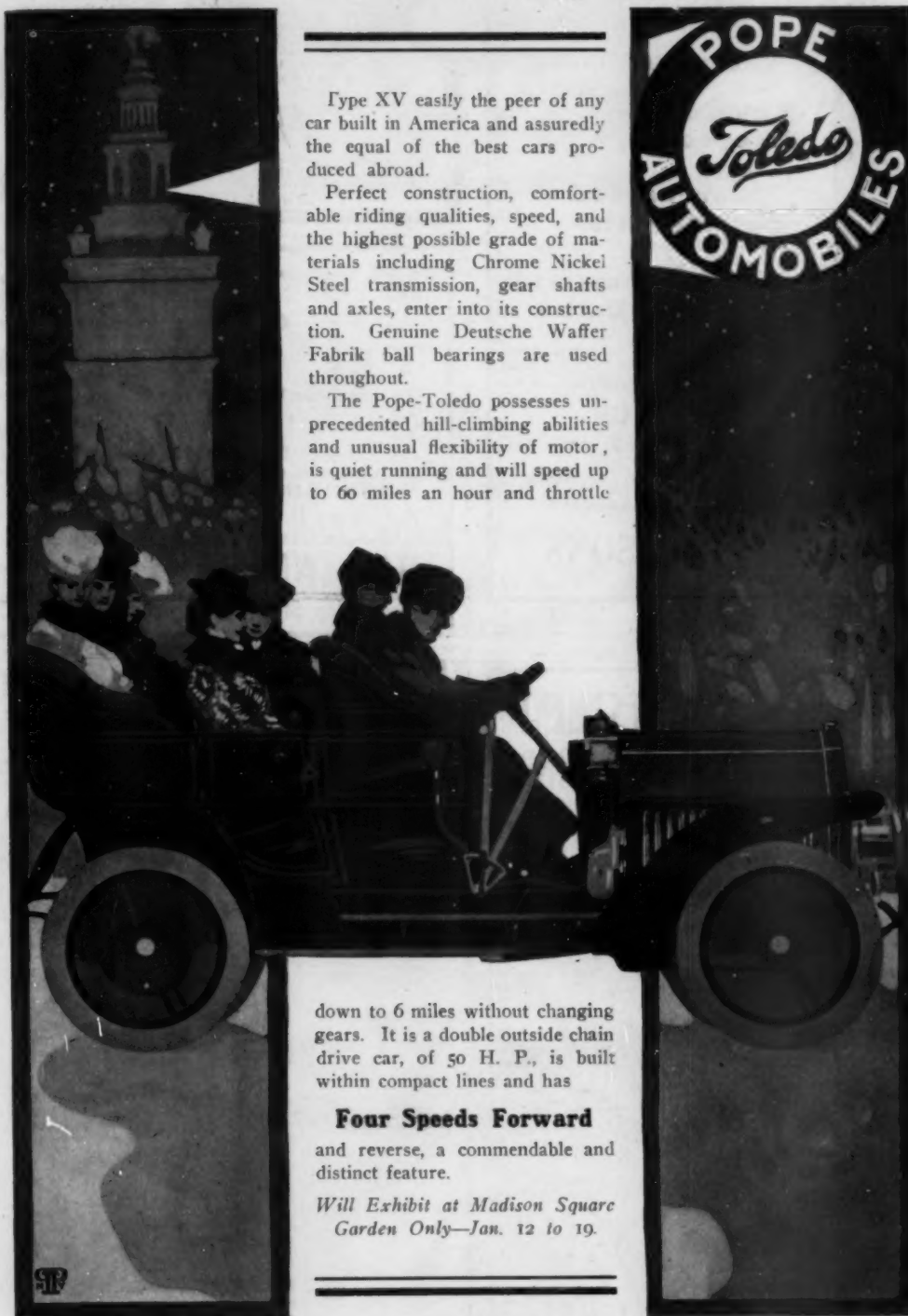
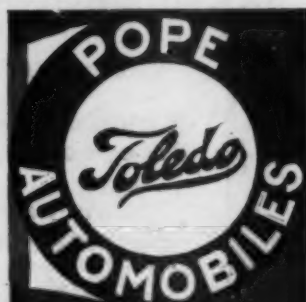
The Pope-Toledo possesses unprecedented hill-climbing abilities and unusual flexibility of motor, is quiet running and will speed up to 60 miles an hour and throttle

down to 6 miles without changing gears. It is a double outside chain drive car, of 50 H. P., is built within compact lines and has

Four Speeds Forward

and reverse, a commendable and distinct feature.

Will Exhibit at Madison Square Garden Only—Jan. 12 to 19.



POPE MOTOR CAR CO.
TOLEDO, OHIO

PITTSFIELD SPARK COIL CO.

MANUFACTURERS OF

 **Coils
Timing
Devices
Switches
Jewell Mica
Plugs
Terminals
Etc.**



Our Coil is the most rapid, economical in battery consumption, most durable and reliable made in the world. Used exclusively by several of the largest and best automobile manufacturers in the country.

The Franklin Gar, which recently won the Economy Test, was equipped with our entire Ignition Outfit — Coils, Timing Devices, Switches and Plugs

All we ask is an unprejudiced test to prove to you that our goods are what we claim

Automobile owners who have ignition troubles would do well to test this Coil

Write for prices and description of our 1907 Ignition Products

Pittsfield Spark Coil Co.
PITTSFIELD, MASS.

They do some things better abroad

The Automobile Club

Of Great Britain and Ireland is to all intents and purposes the court of last resort in Motoring matters.

The club roster contains the names of the greatest scientists, the most prominent business men, social leaders, men who stand at the forefront in the councils of the nation; in a word, the most representative body of men in that country.

This was the body that declared the

Jones Speedometer

more reliable than any other speed indicator in the world, and to emphasize that declaration presented their Club's Gold Medal.

Every reliability test that the fertile minds of experts could suggest; every appliance that the most skilled scientists in the land could devise, resulted in proclaiming the Jones Speedometer ABSOLUTE.

To be of use to the automobilist, the speed indicator should be (1) accurate, (2) durable, (3) correct in principle, (4) mechanically perfect — otherwise it cannot be considered a reliable device.

We exhibit at Madison Square Garden, Jan. 12th to 19th, 1907

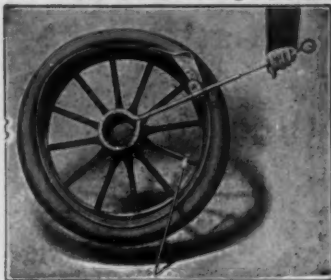
Jones Speedometer

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NEW YORK



OUR TIRE ADJUSTERS WILL PUT ON OR TAKE OFF ANY TIRE

5/8" "MINUTE" ADJUSTER



For CLINCHER TIRES

In from One to Five Minutes

WITHOUT EXERTION

The "Minute" clincher tire adjuster is true to its name. It will actually take off or put on the *heaviest clincher tire* in *one minute* without injury to the shoe or inner tube and may be easily operated by a woman or child.

The "L. & M." Ring tire adjuster is the only ring tire adjuster on the market.

It consists of six tools which are slipped over the tire at intervals, and by turning crank, the tire is forced back from the ring all the way around, thus enabling you to put on or take off the ring with ease.

Both adjusters are absolutely guaranteed.

Write to-day stating kind of tire you use, and we will send you illustrated booklet and price list. Patents applied for.

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520 Central Building, Rochester, N. Y.

5/8" "L. & M." ADJUSTER



For RING TIRES

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Mobile, Mobile Motor Car Co.

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Phoenix, Southwestern Automobile Company.

CALIFORNIA.

Long Beach, C. E. Walters, 323 E. 4th St.
Los Angeles Auto Machine & Garage Co., 631 San Pedro St.
Los Angeles, Burke Bros., 485 S. Spring St.
Moore, Geo. P. Co., Inc.
Oakland, Bennet's Auto Garage.
Riverside, Alex. Nelson, Eighth St.
Sacramento, Jos. J. Schmeer, 1009 No. J St.
San Francisco, Boesch Lamp Co., 1569 Grove St.
San Pedro, Marine Supply Co.
Upland, Euclid Garage.

COLORADO.

Colorado Springs, Colorado Springs Garage Co.
Denver, Automobile & Repair Co., 1640 B'way.
Denver, O. Burke, 918 Larimer St.
Pueblo, Pueblo Automobile Co.

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Bantam, Bantam Anti-Friction Co. (First-Class Repair Station.)
Bridgeport, Bridgeport Automobile Co.
Greenwich, Allen Asten & Co.
Hartford, Brown, Thompson & Co., Main St.
Hartford, The Miner Garage Co., Cor. High and Allyn Streets.
Jewett City, Jewett City Auto Sta.
Meriden, Meriden Automobile Station. Selling, Storing and Sundries, Automobile Repairing.
41 West Main Street. Telephone, 359.
New Britain, Corbin Motor Vehicle Co., Myrtle Ave. and High St.
New Haven, D. H. Buell & Co., 516 State St.
New London, W. H. Starr, 88 Greene St.
Norwich, Smith & Swan, 276 Main St.
Waterbury, H. M. Tyrrell, Jefferson St.

DELAWARE.

Wilmington, T. C. Bradford, 311 Market St.
Wilmington, Delaware Auto. Storage and Repair Co.

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Washington National Capital Auto Co., 1120 18th St., N. W.
Washington, J. B. Maxwell, 829 14th St., N. W.

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Jacksonville, Clarke Automobile and Launch Co., 18 Ocean St.
Miami, Mr. Einig.

GEORGIA.

Atlanta, Capitol City Automobile Company.
Atlanta, Augusta Garage Co., 51 Broad St.
Bainbridge, Charles A. Caldwell.
Macon, Automobile & Machinery Co.
Savannah, G. W. Thomas, 114 Jefferson St.

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Aurora, W. J. Reir.
Chicago, The American Locomotive Co., 1532 E. Michigan Ave.
Chicago, The Automobile Parts & Equipment Co., Michigan Ave. and 13th St.
Chicago, The Franco-American Auto & Supply Co., 1404 Michigan Ave., C. C. Boynton, Mgr.
Chicago, Owen H. Fay Livery Co., 243 Michigan Ave.
Chicago, White & Wildman, 1551 Michigan Ave.
Chicago, A. C. Banker Auto Co., 35th St. and Grand Blvd.
Chicago, The Haynes Automobile Co., 241 Wabash Ave.

Chicago, The Excelsior Automobile Supply Co. and Continental Casouthouse Co., 1436 and 1438 Michigan Ave.
Chicago, Stoddard-Dayton Automobile Co., Grand Boulevard and 40th St.
Joliet, The Joliet Automobile Co.
Monmouth, Wm. Bartlett.
Elgin, Frank B. Wood, River St.

INDIANA.

Flatrock, Flatrock Automobile Co.
Indianapolis, Auto Storage & Repair Co., 23 E. Ohio St.
Indianapolis, Central Garage, 330 E. Market St.
Lafayette, The Tippecanoe Automobile Co., 928 Main St.
Muncie, Muncie Auto Garage & Repair Co., 209 E. Adams St.

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Burlington, Ralph Rogers & Co., 316 N. Main St.
Coin, E. L. Benedict & Sons.
Cedar Rapids, Cedar Rapids Supply Co., 307 3d Ave.
Des Moines, Mason Automobile Co., E. 5th and Market Sts.
Manchester, Manchester Auto. Co.
Muscatine, Fred. Bowman.
Ottawa, J. Kerfoot.
Sioux City, The William Warnock Co.
Waterloo, Wm. Galloway.

KANSAS.

Larned, W. N. Woelk, Jr.
Topeka, Kenwood Garage, 111 E. 7th St.

KENTUCKY.

Louisville, R. L. Davis, 1003 W. Chestnut St.
Louisville, Longest Bros.

LOUISIANA.

New Orleans, Independent Auto. Co., Ltd.

MAINE.

Augusta, Fifield Brothers.
Lewiston, H. J. Willard Co., 48 Ash St.
Portland, Dowling's Garage, 22 Forest Ave.
Telephones N. E. 1630, Auto 1656.
Portland, Maine Motor Carriage Co., Free & South Sts. Telephones N. E. 290, Auto 2861.
Rockland, The Rockland Garage and Auto Co., Main and Winter Sts.
Waterville, The Waterville Motor Co., 245-247 Main St.

MARYLAND.

Baltimore, Auto Storage & Repair Co., 1118 Cathedral St.
Baltimore, Balto. Motor Car Co., 327 N. Calvert St.
Baltimore, A. S. Brown, Mt. Royal Ave.
Baltimore, Chas. I. Wiegand, 840 No. Fulton Ave.
Cumberland, The W. W. Garage & Machine Co., No. Center St.

MASSACHUSETTS.

Boston, Adams-Dutton Motor Car Co.
Boston, The Boston Mechanical Co., Motor Mart.
Boston, Boston Tire and Rubber Co., 184 Friend St.
Boston, F. L. Bradley, 624 Columbus Ave., Dorchester.
Boston, E. S. Breed, Buffum.
Boston, Park Square Auto Station, 43 Columbus Ave.
Brockton, Geo. J. Donahue, 389 Warren Ave., Telephone 92. Charging and accessories.
Fall River, John Williams, 464 Pleasant St.
Gloucester, W. Hodgkins, 9 Western Ave.
Lynn, Y. C. Der Bar, Broad St.
Newton Centre, J. W. Crowell, Commonwealth Ave. Tel. 444 Newton West.
Northfield, N. W. Keel.
Pittsfield, Berkshire Automobile Co.

Pittsfield, Central Automobile Station Co., Renne Ave. & Pearl St. Telephone 161-11.
Stockbridge, H. B. Parsons.
Taunton, Brownell & Burr.
Waltham, Watch City Auto Co., Music Hall Ave.
Worcester, Worcester Auto Co., 30 Exchange St.

MICHIGAN.

Bay City, Mobile Motor and Machine Co.
Coldwater, V. L. Pendleton & Co.
Detroit, Berg & Brehmer, 238 Jefferson Ave.
Detroit, Detroit Automobile Top Co., 265 Jefferson Ave.
Detroit, The Free Bock Auto Co.
Detroit, Wayne Auto & Supply Co.
Flint, Samuel Wey, No. Saginaw St.
Grand Rapids, Lubeck Automobile Co.
Lansing, John Bohnet, 117 Lenawee St., E.
Saginaw, Morris Auto Co., Tilden St. and Genesee Ave.

MINNESOTA.

Minneapolis, Adland Storage & Auto Co., 240 7th Ave. South.
Minneapolis, C. D. Velie, 225 Clinton St.
St. Paul, Bird Burney Auto Co., Washington and 5th Sts.
Winona, Adams Automobile Co.

MISSISSIPPI.

New Orleans, Crescent City Automobile Co., South Rampart St.

MISSOURI.

Kansas City, E. P. Moriarity & Co., 1000 Grand Ave.
Kansas City, Day Auto Co., 1407 S. 12th St.
St. Louis, Olive Auto Co., 3970 Olive St.
St. Louis, The Union Garage, 4603 Olive St.
St. Louis, Colonial Automobile Co., 3944-3950 Olive St.

NEBRASKA.

Lincoln, The Wittman Co., 205 S. 11th St.

NEW HAMPSHIRE.

Manchester, Brodie Elec. Co., 42 Pleasant St.

NEW JERSEY.

Asbury Park, C. R. Zacharias.
Atlantic City, Atlantic Automobile Co.
Atlantic City, Columbia Automobile Station.
Bloomfield, Albert Loppacker, Glenwood Ave. and Henry St.
Camden, Reeves Auto Station, 7th and Market Sts.
East Orange, Hollywood Motor Car Co., Opposite Grove St. Sta.
Elizabeth, Elizabeth Auto Co., 14 Westfield Ave.
Englewood, J. W. Van Wart, Palisade Ave.
Freehold, Hotel American.
Hackensack, Hackensack Auto Co.
Jersey City, Crescent Cycle & Automobile Co., 2565 Hudson Bl'vd.
Jersey City, S. W. J. Kells Mfg. Co., 130 Highland Ave.
Long Branch, W. H. Parker & Co., 148 B'way.
Montclair, Montclair Auto Station Co., Valley Road.
Newark, Newark Garage & Repair Co., Clinton Ave. and Somerset St.
Newark, F. E. Boland Motor Co., 239 Halsey St.
Newark, Coburn & Beldon, 577 Central Ave.
Newark, Astor Garage, 56 Sherman Ave.
Newark, Riverside Garage, 129 Riverside Ave.
Newark, Motor Vehicle Co., 518 Broad St.
Newark, New Jersey Auto Car Co., 226 Halsey St.
Newark, Austin Auto Co., 484 Broad St.
Newark, Forest Hill Auto Co.
Orange, Orange Automobile Garage.
Passaic, Passaic Motor Car Co., 147-151 Main Av.
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\$500.00

RUNABOUT



NO CHANGE HAS BEEN MADE in the design or construction of this car since it was first exhibited at the New York automobile show last year.

REFINEMENTS such as the advanced state of the art of motor car manufacture has made possible have been incorporated and NICKEL-STEEL is now used for all gears, crank-shafts, cam-shafts and other heavy duty parts instead of the ordinary high-carbon commercial steels formerly used.

IT IS OUR AMBITION to make this Ford runabout the best thing on wheels regardless of price. We watch it closer than any other model we have ever put out—it represents more to us.

THE BEST PROOF THAT we have attained our ambition is in the fact that there are now over 2,500 FORD RUNABOUTS on the road and there have been less troubles, less repairs and less replacements, in these 2,500 cars than in any other model ever built.

ENDURANCE?—THE ORIGINAL demonstrating runabout—the car that made the rounds of every show last year—has to its credit

over 50,000 miles—demonstrating miles; it is still in service and can hold its own with the last one that came from the factory.

HOW IT IS DONE? Envious competitors say by the use of cheap materials and slighting the work. It is impossible to profitably build a four cylinder car at \$500 by the use of poor materials. And loose workmanship is the most expensive kind that can be put in an automobile. The maker loses many times the cost of good labor when it comes to assembling parts that will not fit—that are so loose they are noisy or so tight as to call for filing—hand work.

“THE ECONOMY OF ACCURACY” is our answer. Ford simplicity of design; Ford quality and materials—the best—no culls—no loss. Ford automatic machinery and finally Ford system of inspection. WE ELIMINATE THE GUESS—certainty, accuracy, take the place of perhaps. That's the feature the other fellow can't copy—he lacks both the experience and the organization. So he gets mad and—advertises us.

PRICE: 28-in. x 2½ Tires, \$500 F. O. B. Factory; 3-in. Tires, \$50 extra.

WE CAN ACCEPT ORDERS for immediate delivery now. No orders accepted or promises made for spring delivery—we'll be swamped as we were last spring. To get one—get it now.

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Factory: DETROIT, MICH.

Member American Motor Car Manufacturers' Assoc., Chicago

BRANCHES: 147-149-151-153 Columbus Ave., Boston; 1721-23 Broadway, New York; 727 Main St., Buffalo; Broad and Buttonwood Sts., Philadelphia; 1444 Michigan Ave., Chicago; 1913 S. E. Euclid Ave., Cleveland, and 318-320 11th St., Kansas City. CANADIAN TRADE supplied by Ford Motor Company of Canada, Ltd., Walkerville, Ontario.

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Summit, Chester & Henry.
Trenton, Walter Richards.

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Albany, Albany Exchange, Storage and Repairing, State and Larke Sts.
Albany, Ernest A. Norris, 325 Central Ave.
Amsterdam, J. L. Peck.
Ballston Springs, Tracy, Nicholl Auto Garage.
Bath, Frank Klickler.
Buffalo, Auto-Car Garage, 77 Edward St., Near Delaware Ave.
Buffalo, Kelsey Co., 42 Niagara St.
Buffalo, Motor Vehicle Garage Co., 1133-1137 Main St.
Buffalo, C. R. Baine, 1525 Seneca St.
Elmira, H. C. Goarser, 122 R. R. Ave.
Ithaca, Fairbanks, Grant Mfg. Co., 109 Albany St.
Middletown, C. L. Swezy, 28 James St.
New Rochelle, Deselbrow Motor Car Co.
New York City, American Automobile Storage Co., 36-38-40 W. 60th St.
New York City, Cryder & Co., Storage and Repairs, 63d St. & Park Ave.
New York City, American Locomotive Auto Co., B'way and 57th St.
New York City, Archer & Co., 231-233-235 W. 40th St.
New York City, The Autocar, 2181 B'way.
New York City, The Auto Mart, 501 7th Ave.
New York City, Bouton Motor Co., 110 W. 41st St.
New York City, Sidney B. Bowman Auto Co., 52 W. 43d St.
New York City, B'way Automobile Exchange, 515 7th Ave.
New York City, Columbus Auto Exchange & Stor. Co., 313 W. 52d St.
New York City, Hol Tan Co., B'way & 56th St.
New York City, Harry S. Hought, 731 7th Ave.
New York City, Locomobile Co. of America, B'way and 76th St.
New York City, Majestic Automobile Co., 1709 B'way.
New York City, Mt. Morris Auto Garage, 27 W. 124th St.
New York City, Panhard & Levassor Auto Co., B'way and 62nd St.
New York City, Tuxedo Garage Co., 33-39 E. 58th St.
New York City, Victor Auto Storage Co., 147 W. 55th St.
New York City, White Sewing Machine Co., 42 W. 62nd St.

New York City, Winton Motor Carriage Co., 1706 B'way.
Poughkeepsie, John Van Benschoten, Catherine St.
Rochester, Fred A. Mabbett, 189 Main St., West.
Saratoga Springs, Hodges Auto Garage.
Saratoga Springs, Ketchum's Auto Garage.
Syracuse, The Amos Pierce Auto Co., 109-113 So. State St.
Utica, Utica Motor Car Co., Harry P. Mundy.

NORTH CAROLINA.

Charlotte, L. Barringer, 10 N. Church St.

OHIO.

Akron, Union Automobile Garage Co., South College St.
Akron, Akron Auto Garage Co., 9 W. Buchtel Ave.
Cleveland, Geo. A. Crane & Co., 40 Clara St.
Cleveland, H. S. Moore, 160 Crawford Rd.
Cincinnati, Gunther Bros. Co., 1633 Madison Bl'vd.
Cincinnati, Queen City Auto Co., 820 Race St.
Columbus, Capitol City Auto Co., 691 High St.
Dayton, Chas. E. Drury, Miami Motor Co.
Dayton, Kiser & Co., 29 E. 2nd St.
Toledo, Toledo Motor Carriage Co., 1012 Madison St.
Youngstown, A. E. Brown, 134 E. Federal St.

OREGON.

Portland, Ballou & Wright, 86 Sixth St.

PENNSYLVANIA.

Allentown, Harry A. Smith, Church & Court Sts.
Allentown, O. J. Dietrich, N. 10th St.
Allegheny, Allegheny Auto Co., 711 Jackson St.
Ambler, D. E. Johnson.
Dalton, Kellogg, Mosier & Co.
Doylestown, John J. Donnelly.
Easton, E. F. Crane, Holland Garage, 200 South 3rd St.
E. Downingtown, Griffith & Wollerton.
Erie, Bay State Machine Co., 121 Peach St.
Harrisburg, Central Penn. Auto Co., Market St.
Lancaster, Safety Buggy Co., Elizabeth and Plum Aves.
McKeesport, Sam'l Leek, 9th Ave. and Mulberry.
Overbrook, Henry Mackeller.
Philadelphia, Regent Garage, 220 South 40th St., West Philadelphia.

Philadelphia, Eastern Automobile Co., Broad below Callowhill.
Philadelphia, Bellevue Stratford Garage.
Philadelphia, 51st St. Auto Station, 51st St. and Beaumont Ave.
Philadelphia, D. L. Mulford, 1801 N. 21st St.
Pittsburg, A. Engle, 1103 Carson St., S. Side.
Pittsburg, East Liberty Auto Co., 3969 Centre Ave.
Pittsburg, H. S. Townsley, 323 Homeward Ave.
Pittsburg, Hiland Garage, Beatty and Baum Sts.
Pittsburg, Standard Automobile Co., 5917 Baum St.
Pottstown, D. G. Good.
Reading, E. S. Youse.
Stroudsburg, G. H. Schroeder.
Wilkes-Barre, Wilkes-Barre Auto Co., 23 N. Franklin St.
Wilkes-Barre, Auto Machine & Repair Co., 35 N. Washington St.
Williamsport, Williamsport Automobile Exchange, West 3rd St.
York, J. A. Walker.

RHODE ISLAND.

Narragansett Pier, Church & Caswell.
Newport, N. Y. Auto Repository, Ocean House Stables.
Newport, J. D. Dickson, 113 Bellevue Ave.
Providence, Philip Shaw, Reservoir Ave.

TENNESSEE.

Chattanooga, Sid Black Automobile Co.
Nashville, Anderson Auto Co., 314 4th Ave. N.
Nashville, B. T. Bell, 166 3d Ave. N.

UTAH.

Ogden, Ogden Automobile Co., Twenty-fourth St.

VERMONT.

Rutland, Clark & Mathews, 161 West St.
White River Junction, Excelsior Carriage Co.

WISCONSIN.

Milwaukee, C. G. Norton & Co., 459 B'way.
Milwaukee, Hein & Casper, 501 B'way.
Milwaukee, Welch-Estberg Co., Seventh and Grand Ave.

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Montreal, Dominion Motor Car Co.
Quebec, Quebec Auto and Launch Co.
Winnipeg, McCulloch & Boswell, 189 Lombard St.
Winnipeg, Jos. Maw & Co., 280 William St.

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CARTERCAR "THE CAR AHEAD"



The Carter patented system of friction transmission used in these cars is guaranteed the simplest, most durable and powerful in use. One lever controls all speeds forward and back. Three years in actual use.



No gears to strip, no clutch to slip, will hold on any hill. Catalogue free.

MOTORCAR CO. DETROIT, MICH.

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 (Ever Ready.)
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 Dow Portable Elec. Co., Braintree, Mass.
 Eldridge Electric Mfg. Co., 3 Post Office Sq., Springfield, Mass.
 Snutsel Auto-Supply Co., 1534 B'way, N. Y.

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 Dentzau, Geo., 161 Grand St., N. Y. City, N. Y.
 Excelsior Supply Co., 233-237 Randolph St., Chicago, Ill.
 Mesinger, H. & F., Mfg. Co., 1801 First Ave., N. Y. City, N. Y.
 Snutsel Auto-Supply Co., 1534 B'way, N. Y.
 Sunbury Mfg. Co., Sunbury, Ohio.
 Weed Chain Tire Grip Co., 28 Moore St., N. Y. City, N. Y.

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 Empire Gear and Top Co., 413 N. 22d St., Philadelphia, Pa.
 Excelsior Supply Co., 233-237 Randolph St., Chicago, Ill.
 Fickling & Co., 154 E. 57th St., N. Y. City.
 Gilbert Mfg. Co., New Haven, Conn.
 National India Rubber Co., Bristol, R. I.
 Snutsel Auto-Supply Co., 1534 B'way, N. Y.
 Springfield Auto Top and Upholstering Co., 102-106 Dwight Street, Springfield, Mass.
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 Wiley (The), Wm. H. Co., Box 78, Hartford, Conn.

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 Heywood Bros. & Wakefield Co., 14 Portland St., Boston, Mass.
 Snutsel Auto-Supply Co., 1534 Broadway, N. Y.

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 Post & Lester Co. (The), 20 Sergeant St., Hartford, Conn.
 Rousseau Mfg. Co., 310 Mott Ave., N. Y. City.
 (Electric.)

BRAZING COMPOUNDS.

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 Excelsior Supply Co., 233-237 Randolph St., Chicago, Ill.
 National Cement and Rubber Mfg. Co., 3053-59 Monroe St., Toledo, Ohio. "High Pressure" and "Red Cross."
 Standard Brazing Co., 88 Broadway St., Boston, Mass.

Thompson, Chas. A. Co., 39 Cortlandt St., N. Y. City. (Self-fluxing solder.) "Solderine."
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 Post & Lester Co. (The), Hartford, Conn.
 Saks & Co., Broadway, 33d and 34th Sts., N. Y. City.
 Scandinavian Fur and Leather Co., 14-16 W. 33d St., New York City.
 Shaw, Ora D., 109 Kingston St., Boston, Mass.
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 American Generator Co., N. E. Cor. Park Ave. and 63d St. (Combined tank and carbureters.)
 Ardley Motor Car Co., Yonkers, N. Y.
 Automobile Supply Co. (The), 1339 Michigan Ave., Chicago, Ill.
 Auto. & Power Appliance Co. (The), 357-359 The Arcade, Cleveland, Ohio.
 Barker, C. L., Norwalk, Conn. "Barker."
 Bowen Motor Co., 92 Baynes St., Buffalo, N. Y.
 "Phoenix."
 Bradford Motor Co., Bradford, Pa. "Longuemare."
 Breaze Motor Mfg. Co., 33 Court St., Newark, N. J.
 Brennan Motor Co., 101 Grape St., Syracuse, N. Y.
 Burt Mfg. Co., 124-130 N. Edwards St., Kalamazoo, Mich.
 Byrne, Kingston & Co., Kokomo, Ind. "Kingston."
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 Clemick-Hirsch Co., 594 National Ave., Milwaukee, Wis.
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 Cook Kerosene Carbureter Co., 15-21 Exchange Place, Jersey City, N. J. "Cook Kerosene."
 Crouch Motor Co., Stoneham, Mass. "Crouch."
 Culver Novelty Co. (The), Culver, Ind.
 Curtiss, Geo. H., Mfg. Co., Hammondsport, N. Y.
 Dearborn, F. W., 751 Old South Bldg., Boston, Mass.
 Dow Portable Electric Co., Braintree, Mass. "Methot."
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 Fairmount Engineering Co., 3207 Spring Garden St., Philadelphia, Pa.
 Funke, A. H., 83 Chambers St., N. Y. City, N. Y. (Motor Cycle.)
 Generator Valve Co., 108 Liberty St., N. Y. City, N. Y. (Marine.)
 Hatcher Auto-Parts Co. (The), 138 Viaduct, Cleveland, Ohio.
 Hewitt Motor Co., 6-10 E. 31st St., N. Y. City, N. Y.
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Hurd & Haggin, 316 Hudson St., N. Y. City, N. Y.
 Jager, Chas. J., Co., 166-68 High St., Boston, Mass.
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 Mayo Damper Co., 395 Walnut St., Pottstown, Pa.
 Menn's New Auto Mart, Boston, Mass.
 Merkel Motor Co., Layton Park, Milwaukee, Wis.
 Michigan Motor Co., 246 S. Front St., Grand Rapids, Mich.
 Murray, John A., 112 Front St., Brooklyn, N. Y.
 North Chicago Machine Co., North Chicago, Ill.
 Sherwood Mfg. Co., 1702-12 Elmwood Ave., Buffalo, N. Y.
 Shipman Mfg. Co., Sunbury, Pa. "Shipman."
 Speed Changing Pulley Co., 750 E. Washington St., Indianapolis, Ind.
 Walker, B. F., 57 Golden Hill St., Bridgeport, Conn.
 Wheeler, F. H., 937 N. Meridian St., Indianapolis, Ind. "Schebler."
 Winkley Co. (The), Box 243, Detroit, Mich. "Garlus."
 Wray Pump and Register Co., 191 Mill St., Rochester, N. Y.

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 Excelsior Supply Co., 233 E. Randolph St., Chicago, Ill.
 Fisk Rubber Co., Chicopee Falls, Mass. (Auto and bicycle.)
 Goodrich, B. F. & Co., Akron, Ohio. "Goodrich."
 Hartford Rubber Works Co., Hartford, Conn. "Hartford."
 Hastings & Anderson, 116 Lake St., Chicago, Ill.
 India Rubber Co., 16 Warren St., N. Y. City.
 International Automobile and Vehicle Tire Co., Milltown, N. J.
 M. & M. Mfg. Co., Akron, Ohio. (And acid curing solutions.)
 National Cement and Rubber Mfg. Co., 3053-59 Monroe St., Toledo, Ohio. "Red Cross."
 "Anchor," "Pioneer," High Pressure, "A. & B."
 Noonan Tool and Machine Works, 103-105 Dominick St., Rome, N. Y.
 Pneu-Cure Co., 1133 Broadway, N. Y. City.
 "Pneu-Cure."
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 Rubber Goods Repair Co., 89 16th St., Chicago, Ill.
 Tingley & Co., Chas. O., Rahway, N. J.
 Young, Orlando W., 174-180 Frelinghuysen Ave., Newark, N. J.

CHAINS (AUTOMOBILE).

Baldwin Chain and Mfg. Co., Dept. B, 31 Hermon St., Worcester, Mass. ("Baldwin" Detachable.)
 Boston Gear Works, 152 Purchase St., Boston, Mass.
 Diamond Chain and Mfg. Co., 241 W. Georgia St., Indianapolis, Ind.
 Duryea Power Co., North River and Hockley Sts., Reading, Pa.
 Link Belt Engineering Co., Hunting Park Ave. and P. & R. R., Nicetown, Philadelphia, Pa.
 Meisel Press and Mfg. Co., 944-948 Dorchester Ave., Boston, Mass.
 Morse Chain Co., Trumansburg, N. Y. (Silent Running High Speed.)
 Snutsel Auto-Supply Co., 1534 Broadway, N. Y.
 Whitney Mfg. Co. (The), Hartford, Conn.

CHAIN ADJUSTERS.

Aurora Automatic Machinery Co., Aurora, Ill. "Thor."
 Clark, A. N., & Son, Plainville, Conn.
 Corbin Screw Corporation, New Britain, Conn.
 Worcester Pressed Steel Co., Worcester, Mass.

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Condax Extra Plain	- - .30	Condax Special Plain	- - .20

E. A. CONDAX & CO.,

305 Pearl Street, N. Y.

THEY SUPPLY YOUR WANTS—Continued

CHAIN CLEANING MATERIALS.

Cole, G. W. Co., 143 Broadway, N. Y. City.
("3-in-1.")
Excelsior Supply Co., 233 E. Randolph St.,
Chicago, Ill. ("Famous.")

CHAIN GUARDS (AUTOMOBILE).

Automobile Equipment Co., 251 Jefferson Ave.,
Detroit, Mich.

CIGAR LIGHTER.

International Auto. and Yacht Agency, 119-121
Nassau St., N. Y. City, "Radium."
Rochester Auto. Co., Rochester, N. Y.
Snutsel Auto-Supply Co., 1534 Broadway, N. Y.

CLEANING COMPOUNDS.

Fisk Mfg. Co., Springfield, Mass. (Soap.)
Ford & Dennen, 16 Thayer St., Boston, Mass.
(Soap.)

CLOCK HOLDERS.

Coleman, H. P., 66 Stanhope St., Boston, Mass.
Post - Lester Co. (The), 20 Sargeant St.,
Hartford, Conn. (Watch Holders.)

CLOCKS (AUTOMOBILE).

Brown, R. E., Whitney Building, Cleveland, O.
Bullard, J. H., Springfield, Mass. (Speedometer,
odometer and clock combined.)
Chelsea Clock Co., 16 State St., Boston, Mass.
(Also Boat.)
Excelsior Supply Co., 233-237 Randolph St.,
Chicago, Ill.
Levy, Manasseh & Co., 182 Broadway, N. Y. City.
Meyrowitz, E. B., 104 E. 23d St., N. Y. City.
Motor Car Equipment Co. (The), 55 Warren St.,
N. Y. City.
Motor Car Specialty Co., 143 E. State St.,
Trenton, N. J. (Speedometer, Odometer and
Clock Combined.)
Post & Lester Co. (The), 20 Sargeant St.,
Hartford, Conn.
The Electric Flash Light Clock.
Wilson Auto Clock Co. (The), 935 Arch St.,
Philadelphia, Pa.

CLOTHING (AUTO).

Automobile Equipment Co., 251 Jefferson Ave.,
Detroit, Mich. (Rubber Capes.)
Clark Glove Co., Peabody, Mass. (Leggings.)
Excelsior Supply Co., 233-237 Randolph St.,
Chicago, Ill.
Gilbert Mfg. Co., New Haven, Conn. (Leggings,
Sleeve Protectors.)
Laitin, I. & H., 289 Church St., N. Y. City. (Fur
Lined Overcoats.)
Mesinger, H. & F., Mfg. Co., 1801-3 First Ave.,
N. Y. City. (Leggings.)
Moore-Smith Co., 250 Devonshire St., Boston,
Mass. (Fur and Fur Lined Coats.)
Nathan Novelty Mfg. Co., 88-90 Reade St., N. Y.
City. (Sleeve Protectors.)
National India Rubber Co., Bristol, R. I. (Rub-
ber Shirts.)
Post & Lester Co. (The), Hartford, Conn.
(Leggings.)
Raymond, A. & Co., 129-133 Fulton St., N. Y.
City. ("Raymond.")
Rosenthal & Katz, 52 W. 18th St., N. Y. City.
Scandinavian Fur and Leather Co., 14-16 W. 33d
St., N. Y. City.
Snutsel Auto-Supply Co., 1534 Broadway, N. Y.
City.
Stern Bros., W. 23d St., N. Y. City.

COLLAPSIBLE BUCKET.

Duplex Folding Pail Co., 114 E. 14th St., N. Y.
City.
Durkee, C. D., & Co., 2 South St., N. Y. City.
Goodrich, B. F., Co., Akron, Ohio.

CYLINDER OIL.

Allerton Oil and Grease Co., 78 Broad St., N. Y.
City.

Columbia Lubricants Co., 78 Broad St., N. Y.
City.

Excelsior Supply Co., 233-237 Randolph St.,
Chicago, Ill.

Fiske Bros. Refining Co., 59 Water St., N. Y.
City.

Harris, A. W., Oil Co., 326 S. Water St.,
Providence, R. I.

Havemeyer Oil Co. (The), 80 Broad St., N. Y.
City. "Havoline."

Hawes, Geo. A., 73 Pine St., N. Y. City.

Kellogg, E. H., & Co., 243 South St., N. Y.
City. (Anti-Corrosive.)

Kellom, Chas. F., 128 Arch St., Philadelphia, Pa.

Miller's Sons, Wm. P., 79 3d St., Long Island
City.

Musliner, Joseph I., & Co., 204-206 Maiden Lane,
N. Y. City.

Pennsylvania Petroleum Co., 117 N. 2d St.,
Philadelphia, Pa.

Speare's, Alden, Sons Co. (The), 369 Atlantic
Ave., Boston, Mass.

Valvoline Oil Co., 27 State St., Boston, Mass.
"Valvoline."

Young, O. W., 180 Frelinghuysen Ave., Newark,
N. J.

EMERGENCY CASES.

Mamedion Chemical Co., 314 E. 79th St., N. Y.
City.

U. S. Emergency Case Co., 11 Weaver Bldg.,
Utica, N. Y.

ENGINE STARTERS.

Auto Improvement Co. (The), 304 Hudson St.,
N. Y. City. "Ever-Ready."

Lock Switch Mfg. Co., 20 Broad St., N. Y. City.

FILTERS.

Jones, Wm. S., 112 N. Broad St., Philadelphia, Pa.

FIRE EXTINGUISHERS.

Badger, E. B., & Sons Co., 63 Pitts St., Boston,
Mass.

Boyd, J., & Son, 10 N. 4th St., Philadelphia, Pa.

Johns-Manville Co., H. W., 100 William St.,
N. Y. City.

Little Giant Mfg. Co. (The), 88 Wall St., N. Y.
City. ("Little Giant.")

Rex Fire Extinguisher Co. (The), 152 Centre
St., N. Y. City. ("Rex.")

U. S. Fire Extinguisher Mfg. Co., 134 W. 23d
St., N. Y. City.

GOGGLES AND MASKS.

Excelsior Supply Co., 233-237 Randolph St.,
Chicago, Ill.

Funke, A. H., 83 Chambers St., N. Y. City.

Globe Optical Co., 403 Washington St., Boston,
Mass.

Meyrowitz, E. B., 104 E. 23d St., N. Y. City.

Mills Mfg. Co. (The), 10 E. 23d St., N. Y. City.

Rubay, Leon, 140 W. 38th St., N. Y. City.

Scandinavian Fur and Leather Co., 14-16 W. 33d
St., N. Y. City.

Snutsel Auto-Supply Co., 1534 Broadway, N. Y.
City.

GRAPHITE.

Dixon, Jos., Crucible Co., Jersey City, N. J.

"Dixon," "L. A. W.," "No. 635," "Auto and
Bi," "Graphiolo."

GREASES.

Allerton Oil and Grease Co., 78 Broad St., N. Y.
City.

Columbia Lubricants Co., of N. Y., 78 Broad St.,
N. Y. City. "Monogram and Initial."

Fiske Bros. Refining Co., 59 Water St., N. Y.
City. "Lubroline."

Harris, A. W., Oil Co., 326 S. Water St.,
Providence, R. I. (Auto.)

Kellogg, E. H., & Co., 243-244 South St., N. Y.
City. "Anti-friction," "Excelsior."

Rubay, Leon, 140 W. 38th St., N. Y. City.

Speare's, Alden, Sons Co. (The), 369 Atlantic
Ave., Boston, Mass.

Vacuum Oil Co., 29 Broadway, N. Y. City.

HORNS (AUTOMOBILE).

Automobile Supply Mfg. Co., 320 Driggs Ave.,
Brooklyn, N. Y.

Exhaust Horn, New Jersey Tube Co., Newark,
N. J.

New Jersey Tube Co., Newark, N. J. (Exhaust
Horn.)

Funke, A. H., 83 Chambers St., N. Y. City.

Gabriel Horn Mfg. Co., 970-72 Hamilton St.,
Cleveland, Ohio.

Gleason-Peters Air Pump Co., 20 W. Houston
St., N. Y. City.

Goodrich, B. F., Akron, Ohio.

Hutchinson Electric Horn Co., Suite 9033, No. 1
Madison Ave., N. Y. City.

Manhattan Screw and Stamping Works, Seventh
Ave. and 11th St., N. Y. City.

Motor Car Equipment Co. (The), 55 Warren
St., N. Y. City.

New York Coach and Auto Lamp Co., 798 Tenth
Ave., N. Y. City.

Riley & Klotz, 17-19 Mulberry St., Newark, N. J.

Rubay, Leon, 140 W. 38th St., N. Y. City.

Snutsel Auto-Supply Co., 1534 Broadway, N. Y.
City.

Willis, E. J., Co., 10 Park Place, N. Y. City.

Twentieth Century Mfg. Co., 19 Warren St.,
N. Y. City. "Twentieth Century."

HOUSES (AUTOMOBILE).

C. & A. Patented Building Construction Co.,
170 Broadway, N. Y. City.

Premier Mfg. Works, St. John, Mich.

Smith, H. W., Room 1512, No. 66 Broadway,
N. Y. City.

Springfield Moulding Works, 58 Waltham Ave.,
Springfield, Mass.

IGNITION BATTERIES.

American Electrical Novelty and Mfg. Co.,
Spring, Hudson and Vandam Sts., N. Y. City.
(Ever-Ready.)

Dayton Electrical Mfg. Co. (The), 600-12 Reibold
Bldg., Dayton, Ohio. (Apple-Duplex.)

Dayton Mfg. Co., Dayton, Ohio.

Dow Portable Electric Co., Braintree, Mass.

Eastern Carbon Works, West Side Ave. and
Central R. R., Jersey City, N. J.

Edison Storage Battery Co., Glen Ridge, N. J.

Electric Contract Co., 202-4 Centre St., N. Y.
City.

Empire State Dry Battery Co., 70 Fulton St.,
N. Y. City.

Gould Storage Battery Co., 1 West 34th St.,
N. Y. City. "Gould."

Hutchinson Electric Horn Co., Suite 9033, No. 1
Madison Ave., N. Y. City.

National Battery Co., 368-382 Massachusetts
Ave., Buffalo, N. Y. "Sperry."

National Carbon Co., W. Madison and Highland
Aves., Cleveland, Ohio. "Columbia."

New England Motor Co., 82 Fletcher St.,
Lowell, Mass.

Nungesser Electric Battery Co., 27-33 King St.,
Cleveland, Ohio.

Pittsfield Spark Coil Co., Pittsfield, Mass.

Roche, Wm., Dry Battery Co., 52-54 Park Place,
N. Y. City.

Royal Battery Co., 143 Chambers St., N. Y. City.
(National Sales Corporation, 256 Broadway,
N. Y. Factory Sales Mgr.) "Geecce."

Rubay, Leon, 140 W. 38th St., N. Y. City.

Snutsel Auto-Supply Co., 1534 Broadway, N. Y.
City.

Electric Storage Battery Co. (The), Philadelphia,
Pa.

United Electrical Mfg. Co., 53 Vesey St., N. Y.
City. "Crescent."

Willard Storage Battery Co., 29 Academy St.,
Cleveland, Ohio.

THEY SUPPLY YOUR WANTS—Continued

Witherbee Ignitor Co., 541 N. 43d St., N. Y. City.

IMPORTERS (AUTO GOODS).

Angiulli, Luigi, 180-182 Centre St., N. Y. City. (Angelicus lamps.)

Champion, Albert, Co., 541 Tremont St., Boston, Mass. (Spark plugs, spark coils, storage batteries, limousine electric lights, ignition wire, magnetos, oilers, ammeters, voltmeters and siren whistles.)

Coops, C. W., Co., 3 Appleton St., Boston, Mass. Dac Automobile Supply House, 1739 Broadway, N. Y. City.

Excelsior Supply Co., 233-237 Randolph St., Chicago, Ill.

Heller, Joseph S., 123 W. 52d St., N. Y. City. ("Pipe" cars, "Simms" safety buffers.)

Herz & Co., 189 Elm St., N. Y. City. (French coils and storage batteries.)

Holcombe & Co., 45 Vesey St., N. Y. City. (Spark plugs.)

Manufacturers' Agency Co., 1679 Broadway, N. Y. City. (Automobile parts.)

Miller, Chas. E., 97-101 Reade St., N. Y. City. (Auto parts and supplies; auto jewelry and horns.)

Motor Car Equipment Co., 55 Warren St., N. Y. City. (Accessories and supplies.)

Napier Motor Co., of America, 743 Boylston St., Boston, Mass. (Napier motor cars, launches, motors and transmissions.)

National Automobile Co., 205-9 E. 86th St., N. Y. City. (Mercedes parts.)

N. Y. Sporting Goods Co., 17 Warren St., N. Y. City.

Post & Lester Co. (The), 20 Sargeant St., Hartford, Conn. (Horns, lamps, ammeters, spark plugs, voltmeters, spark coils and goggles.)

Rubay, Leon, 140 W. 38th St., N. Y. City. (Continental and Michelin tires, auto horns, La Coste ignition apparatus.)

Smith & Mabley, Inc., Broadway, between 56th and 57th St., N. Y. City. (Billy lamps, "Panhard," "Renault" and "Mercedes" cars, "Hercules" anti-skid tires.)

Snutsel Auto-Supply Co., 1534 Broadway, N. Y. City.

Stallforth, G. & Co., 396-398 Broadway, N. Y. City. (Spark plugs, mica cores.)

Sussfeld, Lorsch & Co., 37 Maiden Lane, N. Y. City. (Miscellaneous French auto supplies.)

INSURANCE (AUTO).

Aetna, Hartford, Conn.

Carlough & Smith, 190 Market St., Newark, N. J. Tobin, Joshua F., 500 Fifth Ave., N. Y. City. Travelers, Hartford, Conn.

JACKS.

Auto Bed Co. (The), 36 Columbus Ave., Boston, Mass. "Autobed."

Buckeye Jack Mfg. Co. (The), Louisville, Ohio.

Duff Mfg. Co., Westinghouse Bldg., Pittsburg, Pa. "Barrett."

Hardy, R. E., Co. (The), 225 W. Broadway, N. Y. City.

Jersey Brake Co., 36 Columbia St., Newark, N. J. "Searla."

Pope Mfg. Co., Hartford, Conn. "Kenosha."

Roth Jack and Tool Co., Room 508, 68 William St., N. Y. City.

Rubay, Leon, 140 W. 38th St., N. Y. City.

Wray Pump and Register Co., 191 Mill St., Rochester, N. Y.

JUVENILE FOOT AND HAND PROPELLED VEHICLES.

Toledo Metal Wheel Co., Toledo, Ohio.

LAMPS (AUTOMOBILE).

American Lamp Co., 83-85 Randolph St., Detroit, Mich.

American Lamp Works, 66 W. 43d St., N. Y. City.

Angiulli, Luigi, 180-182 Centre St., N. Y. City.

Atwood Mfg. Co., Amesbury, Mass.

Badger Brass Mfg. Co. (The), Kenosha, Wis. "Solar."

Boesch Lamp Co., 1569 Grove St., San Francisco, Cal.

Dayton Electrical Mfg. Co. (The), 609-612 Reibold Bldg., Dayton, Ohio. (Combined lighting and igniting outfits.)

Dietz, R. E., Co., N. Y. City.

Edmunds & Jones Mfg. Co., 313-315 Riopelle St., Detroit, Mich.

Elbridge Electrical Mfg. Co., Elbridge, N. Y.

Funk, A. H., 83 Chambers St., N. Y. City.

General Electric Co., Schenectady, N. Y.

Gray & Davis, Amesbury, Mass.

Gray, Peter & Sons, 88-90 Union St., Boston, Mass.

Ham, C. T., Mfg. Co., Rochester, N. Y. "Ham," "Cold Blast."

Hinc-Watt Mfg. Co., 69 Wabash Ave., Chicago, Ill.

Manhattan Screw and Stamping Works, Seventh Ave. and 11th St., N. Y. City.

Motor Car Equipment Co. (The), 55 Warren St., N. Y. City.

New York Coach and Auto Lamp Co., 798 Tenth Ave., N. Y. City.

Post & Lester Co. (The), 20 Sargeant St., Hartford, Conn.

Roe Mfg. Co., 910 Arch St., Philadelphia, Pa. "Neverout."

Rubay, Leon, 140 W. 38th St., N. Y. City.

Scoville & Peck Co., 15 Wooster St., New Haven, Conn. "Peck."

Snutsel Auto-Supply Co., 1534 Broadway, N. Y. City.

Twentieth Century Mfg. Co., 19 Warren St., New York City. "Twentieth Century."

LICENSE TAGS.

Automobile Equipment Co., 251 Jefferson Ave., Detroit, Mich.

Boyle, John & Co., 112-114 Duane St., N. Y. City. (And lamp numbers.)

Dentzeau, Geo., 161 Grand St., N. Y. City.

Lighthouse, Chas. F. & Co., 175 Broadway, N. Y. City.

McKinnon Dash Co., Amherst St., Buffalo, N. Y.

Lesinger, H. & F. Mfg. Co., 1801 First Ave., N. Y. City.

Post & Lester Co., The, Hartford, Conn.

LOCK SWITCHES.

Lock Switch Co., 20 Broad St., N. Y. City.

MONOGRAMS (BRASS).

The Chandler Co., 31 Taylor St., Springfield, Mass.

NAME PLATES.

The Chandler Co., 31 Taylor St., Springfield, Mass.

Walter, N. C. & Sons, 194 William St., N. Y. City.

ODOMETERS.

Bullard, J. H., Springfield, Mass. (Speedometer, odometer and clock combined.)

Jones, Jos. W., 127 W. 32d St., N. Y. City. ("Jones.")

Loring, E. J., Somerville, Mass. (Combined speedometers and odometers.)

Motor Car Specialty Co., 143 State St., Trenton, N. J. (Combination speed meter, odometer and clock.)

Rollins Mfg. Co., Park Sq. Motor Mart, Boston, Mass. (Combined speedometers and odometers.)

Smith, R. H. Mfg. Co., Springfield, Mass. (Combined speedometer and odometer.)

Veeder Mfg. Co., Sargeant and Garden Sts., Hartford, Conn. ("Veeder.")

Warner Instrument Co. (Auto-Meter), Beloit, Wis.

Wood Speedometer Co., 106 Sudbury St., Boston, Mass.

OILS.

(See also Cylinder Oil.)

Allerton Oil and Grease Co., 78 Broad St., N. Y. City.

Borne-Scrymser Co., 135 Front St., N. Y. City.

Columbia Lubricants Co., 78 Broad St., N. Y. City.

Cook's, Adam, Sons, 313 West St., N. Y. City.

Harris, A. W. Oil Co., 326 S. Water St., Providence, R. I.

Hawes, Geo. A., 73 Pine St., N. Y. City.

Kellogg, E. H., & Co., 243-244 South St., N. Y. City.

Rubay, Leon, 140 W. 38th St., N. Y. City.

Spear's, The Alden, Sons Co., 369 Atlantic Ave., Boston, Mass.

Vacuum Oil Co., 29 Broadway, N. Y. City.

White & Bagley Co., Worcester, Mass. "Oilsum."

Young, O. W., 180 Frelinghuysen Ave., Newark, N. J.

POLISHES (METAL).

Armstrong & Co., Kalamazoo, Mich. ("Monarch.")

Cole, G. W., Co., 143 Broadway, N. Y. City.

"R. K." and "3 in 1."

Columbia Lubricants Co., of N. Y., 78 Broad St., N. Y. City.

Edmonds, J., Wesley & Son, 216 Franklin St., N. Y. City. (Electric.)

National Cement and Rubber Mfg. Co., 3053-59 Monroe St., Toledo, Ohio.

Newbern, The S. C. Co., 505 Quarry St., Phila., Pa.

New Jersey Paint Works, Jersey City, N. J.

Raimes & Co., 50 Ferry St., N. Y. City.

PUMPS (AUTOMOBILE TIRE).

Bridgeport Brass Co., 233 Broadway, N. Y. City.

Cleveland Faucet Co., Cleveland, Ohio.

Gleason-Peters Air Pump Co., 20 W. Houston St., N. Y. City.

Jones, Wm., S., 112 N. Broad St., Phila., Pa.

Manhattan Screw and Stamping Works, 7th Ave.

Post & Lester Co., 20 Sargeant St., Hartford, R. & C. Indicator Co., Bridgeport, Conn.

Rubay, Leon, 140 W. 38th St., N. Y. City.

Skinner & Skinner, 4133 Indiana Ave., Chicago, Ill.

Spacke, F. W. Machine Co., Indianapolis, Ind.

Tiley Pratt Co., Essex, Conn.

Ultra Pump and Power Co., Auburn, N. Y.

Wray Pump & Register Co., 191 Mill St., Rochester, N. Y.

RADIATORS.

A. Z. Co., 527 W. 56th St., N. Y. City.

Fedders Mfg. Co., Buffalo, N. Y.

Kells, W. J., Mfg. Co., 66 Van Winkle St., Jersey City, N. J.

RAIN APRONS.

Boyle, John W. & Co., 112-114 Duane St., N. Y. City.

Gilbert Mfg. Co., New Haven, Conn.

Indianapolis Dash Co., Indianapolis, Ind.

Nathan Novelty Mfg. Co., 88-90 Reade St., N. Y. City. (Rain and dust aprons.)

Perfection, The Storm Shield Co., S. Main St., Clyde, Ohio.

Springfield Auto. Top and Upholstering Co., 102-106 Dwight St., Springfield, Mass.

SCHOOLS.

Manhattan Automobile School, 315-21 W. 96th St., N. Y. City.

New York School of Automobile Engineers, 146 W. 56th St., N. Y. City.

SECOND-HAND AUTOMOBILES.

Graham Cycle Co., 601-605 Madison St., Chicago, Ill.

Broadway Auto. Exchange, Inc., 513-15 7th Ave., N. Y. City.

Inter-State Auto. Touring Co., 5 E. 43d St., N. Y. City.

Manhattan Storage Co., 42-44 Cortlandt St., N. Y. City.

Manufacturers' Motor Car Co., 54-56 W. 43d St., N. Y. City.

Times Square Auto Co., 164 W. 46th St., N. Y. City.

SHOCK ABSORBERS AND AUXILIARY SPRINGS.

Baldwin Chain and Mfg. Co., Dept. B, 31 Herman St., Worcester, Mass. "House."

Diermann Shock Absorber Co., 1211 Hudson St., Hoboken, N. J.

Gabriel Horn Mfg. Co., 970-972 Hamilton St., Cleveland, Ohio. "Foster."

Godshalk, E. H. & Co., 23d and Hamilton Sts., Philadelphia, Pa.

Graham Co., The, 84 Waumbeck St., Boston, Mass.

Hartford Suspension Co., 67 Vestry St., N. Y. City.

Indianapolis Bolster Spring Co., Indianapolis, Ind. "Victor."

Kelsey Suspension Co., Tarrytown, N. Y.

Kilgore Auto. Air Cushion Co., 46 Columbus Ave., Boston, Mass. "Kilgore."

Sheddan Mfg. Co., The 138 W. Fayette St., Baltimore, Md.

Supplementary Spiral Spring Co., The, 4524-4562 Delmar Ave., St. Louis, Mo.

SPARK COILS.

Connecticut Telephone & Electric Co., Meriden, Conn.

Goodson Electric Ignition Co., 94 Point St., Providence, R. I. (Also primary "Goodson.")

Hardy, R. E. Co., 225 W. Broadway, N. Y. City.

Heinze Electric Co., Lowell, Mass.

McKibbin Mfg. Co., S. Norwalk, Conn.

Mosler, A. R. & Co., 1679 Broadway, N. Y. City.

National Carbon Co., W. Madison and Highland Ave., Cleveland, Ohio. "National."

National Coil Co., 115-117 Michigan Ave., Lansing, Mich.

COMPLETE LISTS

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In answering advertisements please mention THE AUTOMOBILE MAGAZINE.

THEY SUPPLY YOUR WANTS—Continued

Never-Miss Spark Plug Co., Lansing, Mich.
New York Coil Co., 338 Pearl St., N. Y. City.
Noxon, C. P., 500 E. Water St., Syracuse, N. Y.
Ohio Elec. Works, 76-78 Ellen St., Cleveland, O.
Pittsfield Spark Coil Co., Pittsfield, Mass.
Roche, Wm., Dry Battery Co., 52-54 Park Place, N. Y. City.
Rogers, Geo. D., Automobile Parts Mfg. Co., 56 Kinsman St., Cleveland, Ohio.
Rubay, Leon, 140 W. 38th St., N. Y. City.
(Lacoste.)
Schug Electric Mfg. Co., Champlain and Beaubien Sts., Detroit, Mich.
Seidler-Miner Electric Co., 207-211 Jefferson Ave., Detroit, Mich.
Snutsel Auto-Supply Co., 1534 B'way, N. Y. City.
Splitdorf, C. F., 23 Vandewater St., N. Y. City.
Williams, E. Q., 535 S. Clinton St., Syracuse N. Y.

SPARK PLUGS.

A. Z. Co., 527 W. 56th St., N. Y. City.
Gilbough, B. G., Room 312, 36 La Salle St., Chicago, Ill.
Hardy, R. E., Co., 225 W. Broadway, N. Y. City.
Hatcher Auto-Parts Co., The, 138 Viaduct, Cleveland, Ohio.
Herz & Co., 189 Elm St., N. Y. City, Bougie "Herz"
Induction Coil Co., The, 9-10-11 Miller Bldg., Milwaukee, Wis.
Kokomo Electric Co., The, Kokomo, Ind.
Lipman, Carl E. L., Beloit, Wis. "Billy Hell."
Little & Eastman Co., 595 Harrison Ave., Boston, Mass.
Mayo Damper Co., 355 Walnut St., Pottstown, Pa.
Mezgar, C. A., 203 W. 80th St., N. Y. City.
(National Sales Corporation, 256 Broadway, New York City, Factory Sales Mgr.)
Miller, Chas. E., 97-101 Reade St., N. Y. City.
Mosler, A. R., & Co., 1679 Broadway, N. Y. City.
"Spit Fire."
Never-Miss Spark Plug Co., Lansing, Mich.
"Never Miss."
Oakes & Dow Co., The, 40 Sudbury St., Boston, Mass. "Comet" and "Sootless."
Pittsfield Spark Coil Co., Pittsfield, Mass. "Jewel."
Pope Mfg. Co., Hartford, Conn.
Post & Lester Co., The, 20 Sargeant St., Hartford, Conn.
Rajah Auto-Supply Co., 140 Washington St., N. Y. City.
Richards, F. H., 15 Murray St., N. Y. City.
Richardson Engineering Co., 36 Pearl St., Hartford, Conn.
Roche, Wm., Dry Battery Co., 52-54 Park Place, N. Y. City.
Rubay, Leon, 140 W. 38th St., N. Y. City.
Seidler-Miner Electric Co., 207-211 Jefferson Ave., Detroit, Mich. "S. M."
Snutsel Auto Supply Co., 1534 B'way, N. Y. City.
Splitdorf, C. F., 23 Vandewater St., N. Y. City.

SPEED INDICATORS.

Bullard, J. H., Springfield, Mass. (Speedometer, odometer, clock combined.)
Chromo-Velocimeter Co., The, 1213 Filbert St., Philadelphia, Pa.
Jones, Jos. W., 127 W. 32d St., N. Y. City.
"Jones." (Auto, Boat and Cycle.)
Jones, Wm. S., 112 N. Broad St., Philadelphia, Pa. (Lea Speedistimer and Lea Speedmeter.)

E. T. Kimball Co., (Abell Speedometer), 1779 B'way, N. Y. City.
Monitor Speed Recorder Co., 247 Pearl St., Cambridge, Mass.
Motor Car Specialty Co., 143 E. State St., Trenton, N. J. (Combination speed meter, odometer and clock.)
Rollins Mfg. Co., Park Square Motor Mart, Boston, Mass. (Combined speedometers and odometers.)
Rubay, Leon, 140 W. 38th St., N. Y. City.
Smith, R. H., Mfg. Co., Springfield, Mass. (Also speedometer and odometer, combined.)
Veeder Mfg. Co., Sargeant and Garden Sts., Hartford, Conn. "Veeder Tachometer."
Warner Instrument Co. (Auto-Meter), Beloit, Wis.

TIRES (AUTOMOBILE).

Ajax Standard Rubber Co., 420-430 E. 106th St., N. Y. City.
American Wood Tire Co., 911 Monadnock Building, Chicago, Ill. (Wood.)
Bailey, C. J., & Co., 22 Boylston St., Boston, Mass. (Licensors.) "Bailey Won't Slip."
Broadway Rubber Tire Co., 253 W. 47th St., N. Y. City.
Consolidated Rubber Tire Co., 40 Wall St., N. Y. City. "Kelly-Springfield."
Continental Caoutchouc Co., 43 Warren St., N. Y. City. "Continental."
Continental Rubber Works, Erie, Pa.
Diamond Rubber Co., Akron, Ohio. "Diamond."
Electric Rubber Mfg. Co., Rutherford, N. J.
Firestone Tire and Rubber Co., Akron, Ohio. "Firestone."
Fisk Rubber Co., Chicopee Falls, Mass. "Fisk."
"Mechanically Fastened."
G. & J. Tire Co., Indianapolis, Ind. "G. & J."
Gaulois Tire Co., 1739 B'way, N. Y. City. "Gaulois" (Imported).
Goodrich, B. F., Co., Akron, Ohio. "G. & J."
Goodyear Tire and Rubber Co., Akron, Ohio. "Ajax" and "Goodyear."
Harburg Tire Co., 352 W. 58th St., N. Y. City.
Healy Leather Tire Co., 88 Gold St., N. Y. City.
H. M. & S. Armored Tire Co., Pittsburg, Pa.
Hartford Rubber Work Co., Hartford, Conn. "Hartford" "Dunkop" "Turner."
Ideal Auto Tire Co., 1150 Fourteenth Ave., Detroit, Mich. "Ideal."
India Rubber Co., 16 Warren St., N. Y. City. "India."
International Auto and Vehicle Tire Co., Milltown, N. Y. "International Fox Brand" "International Endurance" "International G. & J."
Kokomo Rubber Co., Kokomo, Ind.
Krotz Mfg. Co., Springfield, Ohio. (Cushion.)
May & Wells, 11 Abbott St., Detroit, Mich.
Mesinger, H. & F., Mfg. Co., 1801 First Ave., N. Y. City. (Leather.)
Michelin Products Selling Co., 31 and 33 W. 31st St., N. Y. City. "Michelin" (Imported).
Mitchell Punctureless Pneumatic Tire Co., 324 Essex St., Swampscott, Mass.
Morgan & Wright, 331-339 W. Lake St., Chicago, Ill.
Motz Clincher Tire and Rubber Co., Akron, O.
Palmer, H. A., 54 Fay St., Akron, Ohio. (Mechanically fastened.)
Pennsylvania Rubber Co., Jeannette, Pa.
Republic Rubber Co., Youngstown, Ohio.
Rubay, Leon, 140 W. 38th St., N. Y. City.
Rubber Tire Co., 1215 Arch St., Philadelphia. "Lattina" (Cellular).

St. John Rubber Tire Co., 116 Broad St., N. Y. City. (Cushioned.)
Salsbury Tire Association, Owosso, Mich.
Samson Tire Co., 12 W. 33d St., N. Y. City.
Single Tube Auto and Bic. Tire Co., 253 Broadway, N. Y. City. (Licensors under Tillinghast Patents.)
Swinehart Clincher Tire and Rubber Co., Akron, Ohio.
Tennant Auto Tire Co., 131 W. Main St., Springfield, Ohio.
The Universal Tire Co., 623 St. James Bldg., N. Y. City. (Cushion.)
Traction Tread Tire Co., 1655 B'way, N. Y. City.
Voorhees Rubber Co., 303 W. 54th St., N. Y. City.
Western Rawhide Belting Co., 7th and National Ave., Milwaukee, Wis. Leather.

TIRE ADJUSTERS.

Long & Mann Co., 520 Central Bldg., Rochester, N. Y.

TIRE BRACKETS.

Gilbert Mfg. Co., New Haven, Conn.

TIRE PROTECTORS.

Empire Rubber Mfg. Co., The, P. O. Box 34, Trenton, N. J.
Gilbert Mfg. Co., New Haven, Conn. (Tire bands and sleeves.)
Leather Tire Goods Co., The, Newton Upper Falls, Mass. "Woodworth."
M. & M. Mfg. Co., Akron, Ohio.
Manning Mfg. Co., Whitney Bldg., Springfield, Mass.
Pneumatic Tire Protector Co., The, Dayton, Ohio.

TIRE PRESSURE INDICATORS.

Lock Switch Mfg. Co., 20 Broad St., N. Y. City.

TIRE REPAIR KITS (AUTOMOBILE).

Continental Caoutchouc Co., 43 Warren St., N. Y. City.
Diamond Rubber Co., Akron, Ohio.
Goodrich, B. F., Co., Akron, Ohio.
Goodyear Tire & Rubber Co., Akron, Ohio.
Hartford Rubber Works Co., Hartford, Conn.
International Automobile and Vehicle Tire Co., Milltown, N. J.
National Cement and Rubber Mfg. Co., 3053-3059 Monroe St., Toledo, Ohio.
Tingley, Chas. O. & Co., Rahway, N. J.

TOPS (AUTOMOBILE).

Automobile Cover and Top Mfg. Co., 148 W. 56th St., N. Y. City.
Auto Top and Specialty Co., Broadway and 63d St., N. Y. City.
Brock Carriage and Wagon Co., The, 417-21 Cass Ave., Cleveland, Ohio.
Detroit Carriage Co., Detroit, Mich.
Duane, W. J., & Co., 1771 Broadway, N. Y. City. (Canopr.)
Morton, Robert E., 26 South St., N. Y. City.
Quinby, J. N., & Co., 1534 Broadway, N. Y. City.
Randa Mfg. Co., 51-55 Macomb St., Detroit, Mich.
Russell, H. I., Worcester, Mass.
Sprague Umbrella Co., Norwalk, Conn. ("Sprague.")
Springfield Auto Top and Upholstering Co., 102-6 Dwight St., Springfield, Mass.
Springfield Metal Body Co., Brightwood, Springfield, Mass.

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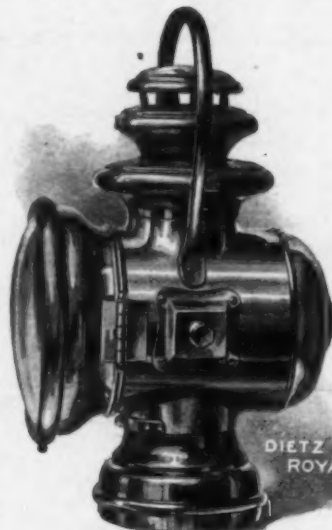


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